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## ABSTRACT

A national evaluation of school-to-work (STW) implementation was conducted by collecting data on four broad issues: states' efforts to promote the changes envisioned by the School to Work Opportunities Act (STWOA); impacts of local STW partnerships on school and workplace opportunities available to students and creation of coherent STW systems; effects of STW implementation efforts on students' in-school experiences; and STW's impact on postsecondary education and on students' education, training, and employment after high school. Data were collected in three studies: the Local Partnership Survey, which was developed to document the characteristics and development of STW partnerships; in-depth case studies in Florida, Kentucky, Maryland, Massachusetts, Michigan, Ohio, Oregon, and Wisconsin and in selected local sites; and surveys of three cohorts of 12th-grade students in the same eight states to document their career goals, experiences in courses integrating academic and vocational instruction and in the workplace, and perceptions of links between school and workplace components. As of July 1996, 10 of 27 states receiving STWOA had established statewide partnerships. Although career development activities were engaging most students, other STW elements were less pervasive. Few schools offered all key STW components. (Thirty-nine tables/figures are included. Appendices contain the following:

local partnership survey completion rates, characteristics of student sample, and student subgroup participation probabilities.) (MN)

## **Building Blocks for a Future School-to-Work System: Early National Implementation Results**

Marsha Silverberg  
Joshua Haimson  
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Mathematica Policy Research, Inc.

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**Building Blocks for a  
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Implementation Results**

**Executive Summary**

*July 1998*

*Marsha Silverberg  
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# **BUILDING BLOCKS FOR A FUTURE SCHOOL-TO-WORK SYSTEM:**

## **Early National Implementation Results**

The School-to-Work Opportunities Act of 1994 (STWOA) addresses the need to better prepare our youth for productive roles in society and the economy. The path to this goal laid out by the legislation involves a coordinated combination of career development activities, high school courses organized around a career goal, and workplace exposure and training.

This set of experiences was conceived as a way to help students develop the skills, knowledge, and habits they need to go from high school to college, training, or employment, and ultimately to successful careers as adults. To make these experiences a coherent system, state and local partnerships of educators, employers, labor organizations, and other community groups have received federal "seed money." Over time, the components of this school-to-work (STW) system are expected to broaden and be incorporated into ongoing educational practices, activities, and programs that reach all students.

Documenting STW implementation is an important step in understanding whether these reforms are taking hold. The U.S. Departments of Education and Labor, and the National STW Office--which jointly administer the STWOA--awarded a contract to Mathematica Policy Research, Inc., and its subcontractors, MPR Associates, Inc., and Decision Information Resources, Inc., to evaluate how, and how effectively, states and local partnerships have created STW systems. Results so far are based on a survey of all local partnerships, case studies in eight states, a survey of 12th graders in these states, and an analysis of their high school transcripts.

## **FINDINGS IN BRIEF**

Assessing STW system development entails measuring the scale of local collaboration and student involvement in the learning experiences promoted by the STWOA. Early findings include:

- Most states have built a widespread partnership structure, with educators playing a lead role in coordinating the work of these entities.
- Of the three key STW components promoted by the STWOA, career development engages the most students. Involvement in career-focused coursework and workplace activities is much less common.
- Early implementation activities have involved a diverse mix of students. Higher-performing students have been somewhat more likely than other students to organize their courses around a career goal.
- In 1996, relatively few schools offered, and few students participated in, all three components encouraged by the STWOA.

These findings relate specifically to several indicators of system development that the evaluation is using to examine STW implementation progress:

- ***Breadth of Participation.*** How widespread are local partnerships and to what extent do they engage key members--schools, employers, colleges, and other entities? Do a large and diverse group of students participate in the learning experiences promoted by the STWOA?
- ***Consistency of System Features.*** Have common practices been adopted across schools in local partnerships, so students have access to a range of STW opportunities of consistent quality and value?
- ***Connectedness of Experiences.*** To what extent are students involved in the coherent combination of experiences envisioned in the legislation?

## PROVISIONS OF THE STWOA

Title I of the STWOA defines STW initiatives as consisting of three types of activities for students and partnerships:

- ***School-Based Learning.*** Career development experiences are envisioned to help students become aware of their interests and strengths and learn about career options. Partnerships and schools are expected to create “career majors,” integrating academic and vocational instruction through new curriculum approaches that are linked to workplace activities.
- ***Work-Based Learning.*** Students should have opportunities to participate in work experience and training coordinated with their school-based studies.
- ***Connecting Activities.*** Partnerships implement activities linking their members--including schools, employers, and colleges--to work together on building STW systems.

These activities involve the three key STW components related to student learning: career development, career majors, and workplace activities. Early implementation of these components in 1996, a time at which many partnerships had only recently formed and received STWOA grants, is the focus of this report.

Additional rounds of data collection will yield information about changes in the availability of STW components among partnerships and their members, as well as the levels of student involvement in these components. This analysis, therefore, can be viewed as a baseline against which future STW development will be measured.

## LOCAL PARTNERSHIP INFRASTRUCTURE

Achieving the goals of the STWOA implies building a statewide structure of local partnerships that, eventually, will give all communities an opportunity to craft their own STW strategy. Although framers of the legislation acknowledged that not all communities would develop STW systems to the same degree or in the same way, they expected that states would include large portions of their communities in the partnerships funded with STWOA grants. By 1996, the following progress had been made:

- *A widespread partnership structure has been created in most states*
- *The first 27 grantee states had laid the foundation for local partnerships.* Of these 27 states, 10 had established partnerships statewide, and most others were in the process of doing so. Many of the nation's secondary school districts and students were included in STW partnerships (Table 1).

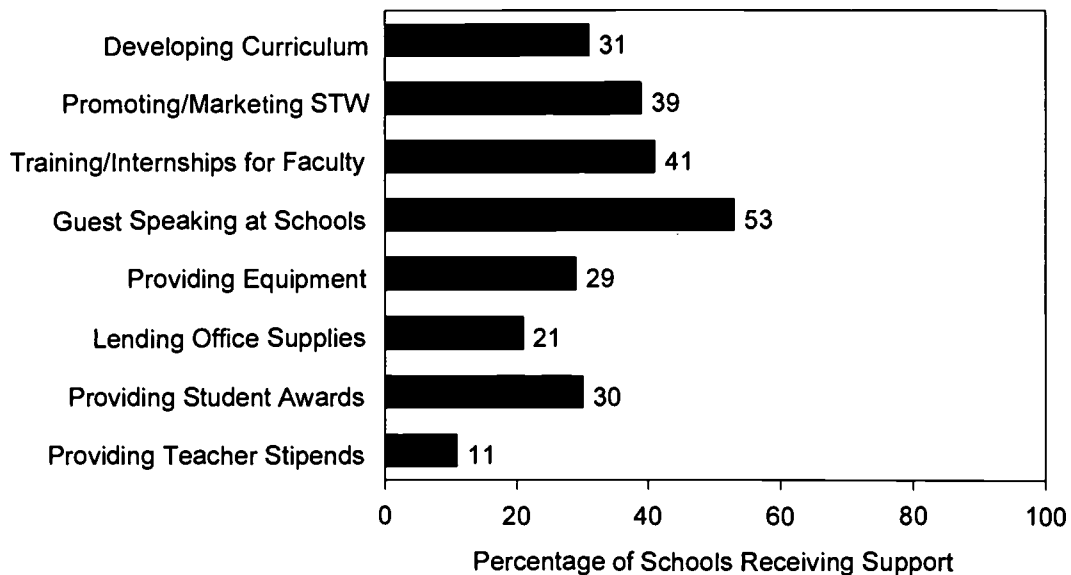
**Table 1: STW Partnerships in 27 Grantee States**

Number of Partnerships Formed	868
Percentage of States' Districts Included	70.2
Percentage of States' High School Students Included in Partnership Districts	76.4

- *Educators play the most prominent role in local partnerships.* Core education and employer groups predominate in STW partnerships. Almost every partnership includes a local education agency and 95 percent include some private-sector members. Postsecondary institutions are members of most partnerships, with two-year colleges more common (in 90 percent of partnerships) and four-year institutions less represented (60 percent of partnerships). About 60 percent of partnerships include labor union members, and close to 70 percent include some kind of alternative education provider. Of these members, local school districts most often play the lead role in STW implementation.
- *Employer engagement with schools is common.* Business and industry were already working with many American high schools in 1996. In addition to student activities at their worksites, employers collaborate with schools in a variety of ways, such as reviewing curricula, promoting STW, and providing internships for faculty. For schools, the most common type of employer involvement is in long-standing practices--having them speak to classes and participate in career fairs (Figure 1).



**FIGURE 1**  
**BUSINESS AND INDUSTRY SUPPORT PROVIDED TO**  
**HIGH SCHOOLS IN 1996**



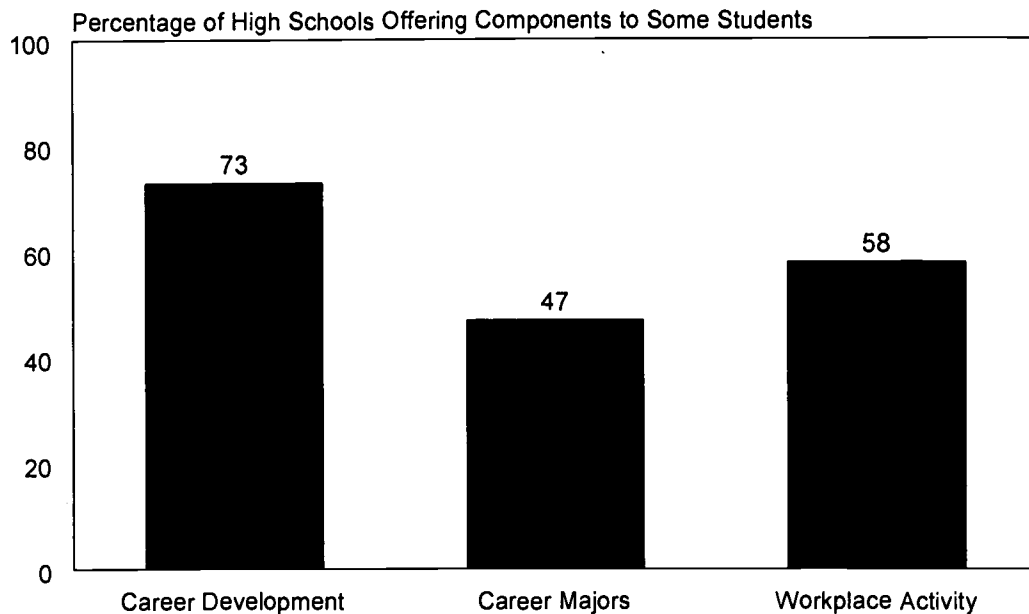
SOURCE: STW Local Partnership Survey, fall 1996, Mathematica Policy Research, Inc.

## PREVALENCE OF KEY STW COMPONENTS

The aim of the STW legislation and state implementation efforts is to expand STW strategies and experiences so that they become common practice and are broadly available to students. As a result, progress toward a STW system should be measured in part by the extent to which local partnership schools are adopting and emphasizing STW components and the degree to which students are participating in them. Analysis of early data, summarized in Figure 2, suggests that:

- ***Career development activities are widely available, but continuity for students remains a challenge.*** In 1996, about 73 percent of all partnership high schools offered at least one career development activity, such as career counseling, career awareness classes, career interest inventories, or use of school career centers to investigate career options. Many students participated; 63 percent of seniors, in fact, had been involved in a varied range of such career development experiences. Within partnerships and within schools, however, linkages between career development activities--for example, across grade levels--are often weak. Making career development a coherent progression of activities for individual students remains a challenge.

**FIGURE 2**  
**AVAILABILITY OF STW COMPONENTS IN 1996**



SOURCE: STW Local Partnership Survey, fall 1996, Mathematica Policy Research, Inc.

*Career development activities engage most student, whereas other STW elements are less pervasive.*

- ***Many schools offer some type of career major, mostly in small programs.*** The STWOA encourages schools to develop rigorous sequences of courses relevant to particular career areas, to provide students with a purpose and focus for their studies. Instead of instituting structured programs with curricula specially developed or tailored to each broad career area, most schools pursue the general purpose of career majors by encouraging students to choose their electives from existing course options, on the basis of their career interests. Nearly half of partnerships schools offered at least some interested students a way to organize their course selections--not just vocational classes--around a career goal. A smaller subset (about one quarter of all partnership schools) offered the kind of comprehensive, structured program (including related work-based learnings) that the STWOA promotes. Even under the liberal definition of career majors, however, relatively few students are involved. The student survey found that 12 percent of 1996 seniors took academic courses that they perceived as geared toward students with their career goals. Reports from the national partnership survey are consistent with this estimate.

- ***Workplace activities are usually low-intensity; links to school-based learning could be strengthened.*** Arranging student workplace opportunities has been a major focus of partnership efforts. About 58 percent of partnership schools provide some workplace activity to students. To date, short-term exploratory experiences have been more common than longer-term work experience or training connected to school curriculum through career majors. For example, community service, worksite visits, and job shadowing are available in 29 to 49 percent of all partnership schools. In contrast, 19 to 29 percent of schools reported they offered more intensive paid work experience during the school year or the summer that they described as “linked to a career major.” However, relatively few of the 1996 seniors surveyed in the eight indepth study states perceived having such school-linked workplace experiences. Just 16 percent said they had had a workplace experience where their performance was counted towards a school grade, and that was drawn on in classroom assignments.

## DIVERSITY OF STUDENTS

Creating a STW system requires not only making certain activities available, but also engaging a broad, diverse population of students. Neither the legislation nor STW practitioners suggest that a standard set of activities should be prescribed for every student. However, the legislation urges partnerships to develop a mix of STW programs and activities accessible to the entire student population. Thus, an important long-term issue is not only how many students participate in STW components, but also how diverse the students are.

The analysis at this stage, which draws on early data about STW implementation, can provide a baseline reading of student participation and characteristics. Our examination of the student survey and transcripts suggests:<sup>1</sup>

- ***STW participation is similar for students of all achievement levels, although higher performing students were somewhat more likely to perceive their studies as organized around a career goal.*** The STWOA calls on partnerships to address the needs of students at all academic levels. By most available measures of academic performance--class rank, attendance, course curriculum, and postsecondary education plans--seniors of higher and lower achievement were engaged in key STW

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<sup>1</sup>These results are derived from both simple cross-tabulations by student characteristics and more formal multivariate regression analysis.

learning experiences at roughly comparable levels in 1996. However, students with higher class rank and better attendance were somewhat more likely to view some of their academic classes as specifically addressing their career goals. Compared with lower-achieving students, they were more likely to find their career interests satisfied in science rather than vocational classes. Higher-performing students were also more likely to have unpaid internships or to do volunteer work.

*Early STW activities involved a diverse mix of students, but higher-performing students were more likely to view their studies as organized around a career goal.*

- ***Many disadvantaged students focus on career preparation, but their academic preparation is less ambitious.*** For students who do not pursue postsecondary education or training--a group that includes many economically disadvantaged students--preparing for a career goal in high school is particularly important. Many partnerships and their member schools are paying special attention to the importance of a career-oriented strategy for these students. Perhaps because of these efforts, low-income seniors, regardless of their academic performance, were more likely than other students to report a career focus in their studies. However, low-income students' career-focused course selections were less likely than higher-income students in general to include science classes or a rigorous college-preparatory curriculum.
- ***Students in rural schools are most likely to engage in career-oriented activities.*** Geographic location and economic conditions can heighten the importance of creating successful STW systems but also intensify implementation challenges, particularly in making workplace opportunities available to students. We found, however, that students in all types of locales--urban, suburban, and rural--were about equally likely to be involved in workplace experiences linked to their school program. However, rural students were significantly more likely to report taking courses they saw as tailored to their career interests and to participate in a comprehensive set of career development activities. These high participation rates may reflect rural students' more extensive involvement in vocational programs, relative to their suburban and urban counterparts.

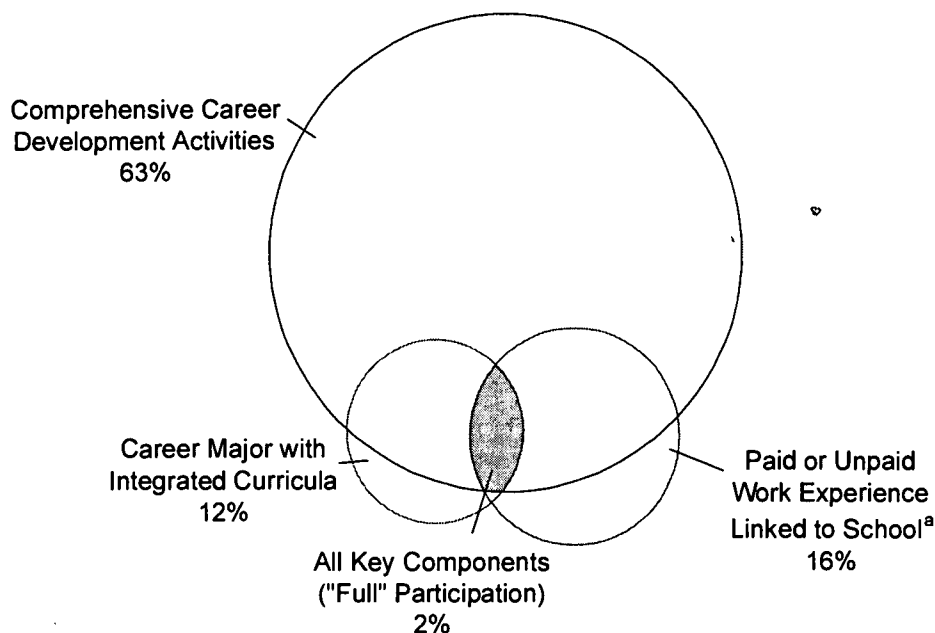
## CONNECTING THE SYSTEM

The STWOA lays out a coherent, related set of learning experiences--career development, career-focused course sequences, and workplace activities--that will be potentially relevant for all youth. Building a STW system is likely to be a gradual, evolutionary process, however. In the early stages, STW partnerships will probably expand and improve particular programs or activities and develop habits of collaboration and coordination. This type of activity is evident in many communities, based on evaluation site visits conducted in 1997. In the longer term, however, true "systems" will emerge only if states, partnerships, school districts, and other members can widely and consistently offer the full set of experiences promoted by the STWOA in ways that engage a large and diverse student population. Our assessment of progress thus far indicates the following:

*In 1996, relatively few schools offered and few students were involved in all key STW components.*

- ***Multicomponent implementation was rare in 1996.*** About 13 percent of all partnerships reported that three-quarters or more of their schools offered the key STW components--career development, career majors, and workplace activities--in ways that could engage at least some students in all three.
- ***Relatively few students were involved in multiple STW components.*** Two percent of seniors in the class of 1996 participated in all three key components (Figure 3). Multicomponent participation was highest among vocational students, students from urban and rural areas, and students with relatively good school attendance.

**FIGURE 3**  
**STUDENT INVOLVEMENT IN KEY STW COMPONENTS**



SOURCE: STW 12th grader survey, 1996, Mathematica Policy Research, Inc.

<sup>a</sup> Workplace performance counts toward school grades, and class assignments draw on the workplace experience

Although partnerships and their members have already organized some essential building blocks for STW development, challenges lie ahead on the road to full system implementation. Fulfilling the STWOA's goal of building a broad system will require greater consistency of interest and approach among partners, improved connections between students' STW activities, and broader student, school, and employer participation. A sustained commitment from states and from local partnerships must underly these efforts. Future evaluation reports will assess the continuation of STW implementation momentum.

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## HOW TO GET THE FULL REPORT

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## ACKNOWLEDGMENTS

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Guidance from the federal government has been extremely helpful. We are indebted to David Goodwin, the evaluation project officer at the U.S. Department of Education, for his insights, flexibility, and patience. We have received valuable input from the national STW office, including Nevzer Stacey, Kristin Conklin, and J.D. Hoyer early in the development of the Local Partnership Survey, and Sharon Belli and Gail Schwartz more recently. Eileen Pederson and Dan Ryan of the U.S. Department of Labor have also provided important comments on evaluation efforts.

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# CONTENTS

Chapter	Page
EXECUTIVE SUMMARY .....	xiii
 I INTRODUCTION .....	 1
A. OBJECTIVES AND PROVISIONS OF THE STWOA .....	2
B. THE NATIONAL EVALUATION OF STW IMPLEMENTATION .....	4
C. REPORT PURPOSES AND KEY FINDINGS .....	6
 II THE LOCAL PARTNERSHIP INFRASTRUCTURE .....	 13
A. PARTNERSHIP FORMATION .....	14
1. Statewide Partnership Coverage Was Already Achieved or Nearly Achieved in Most States .....	14
2. Partnership Formation Has Included Diverse Communities of All Economic Levels .....	18
3. Partnership Funding Levels, While Modest, Slightly Favor Poorer Communities .....	21
B. THE STRUCTURE OF LOCAL PARTNERSHIPS .....	23
1. Partnership Size Affects Options and Challenges .....	24
2. Lack of Geographic Focus Can in Some Cases Weaken Ongoing Collaboration .....	28
3. Alignment of STW and Other Collaboratives Is Useful but Not Yet Universal .....	30
C. COMPOSITION AND LEADERSHIP OF LOCAL PARTNERSHIPS ...	32
1. Core Education and Employer Partners Predominate in STW Partnerships .....	33
2. Employers Are Involved in Governance, but Educators More Often Lead STW Efforts .....	36

## CONTENTS *(continued)*

Chapter	Page
III	AVAILABILITY OF KEY STW COMPONENTS . . . . . 43
A.	CAREER DEVELOPMENT . . . . . 45
1.	Career Development Is Widely but Not Yet Consistently Available in High Schools . . . . . 47
2.	Other Partnership Members Also Offer Career Development . . . . . 49
B.	SCHOOL-BASED LEARNING . . . . . 52
1.	Many Schools Offer Career Majors of Some Type, but Mostly as Small Programs . . . . . 52
2.	Efforts at Curriculum Integration Are Widespread, and Strategies Are Diverse . . . . . 56
3.	Progress in Raising Standards Has Mixed Implications for STW . . . . . 58
C.	WORK-BASED LEARNING . . . . . 61
1.	Workplace Opportunities Are Usually Low-Intensity and Most Common in Urban Areas . . . . . 62
2.	School Enterprises, Widely Available, Are a Partial Alternative to Workplace Learning . . . . . 64
3.	Alternative Education Providers Focus Less than Do Schools on Work-Based Learning . . . . . 67
D.	LINKING THE EFFORTS OF STW PARTNERS . . . . . 69
1.	Schools and Colleges Are Linked by Articulation but Also by Partnership Interactions . . . . . 70
2.	Employer Engagement with Schools Is Very Widespread . . . . . 74
IV	THE SCALE AND DIVERSITY OF STUDENT PARTICIPATION . . . . . 77
A.	DATA SOURCES AND ANALYSIS APPROACH . . . . . 79
B.	SCALE OF STUDENT PARTICIPATION . . . . . 83
1.	Most Students Participate in Comprehensive Career Development Activities . . . . . 83
2.	Few Students Perceive Their Studies as Organized Around a Career Goal . . . . . 85
3.	Most Students Have Workplace Experiences, but Few Positions Are Linked to School . . . . . 88

## CONTENTS *(continued)*

Chapter	Page
IV (continued)	C. WHICH STUDENTS PARTICIPATE MOST IN STW ACTIVITIES .... 90
	1. Participation Is Generally Similar for Students of Different Achievement Levels ..... 91
	2. Female Students Are More Likely to Have Workplace Experience Linked to School ..... 97
	3. Disadvantaged Students Focused on Careers, but Results Are Unclear ..... 105
	4. Students in Rural Schools Are Most Likely to Participate in Career Majors ..... 109
V	CONNECTING THE PARTS OF A STW SYSTEM ..... 117
	A. EARLY MEASURES OF MULTIPLE-COMPONENT INVOLVEMENT ..... 119
	1. Early Indicators Suggest Most Partnerships Are Not at “High-Implementation” Stage ..... 119
	2. Student Involvement in Multiple Components Is Rare in Early Implementation Stage ..... 122
	3. Comprehensive STW Experience Is Most Common So Far Among Vocational Students ..... 124
	B. PATHS TO GREATER SYSTEM IMPLEMENTATION ..... 128
	1. Wider Interest in STW Implementation and Consistency of Practices Is Important ..... 129
	2. Connecting STW Activities Will Require Growing Awareness and Experimentation ..... 130
	3. Implementation Progress Is Likely to Require Ongoing Resources and State Commitment ..... 132
	REFERENCES ..... 135
	APPENDIX A: LOCAL PARTNERSHIP SURVEY COMPLETION RATES
	APPENDIX B: CHARACTERISTICS OF STUDENT SAMPLE
	APPENDIX C: STUDENT SUBGROUP PARTICIPATION PROBABILITIES ESTIMATES FROM MULTIVARIATE MODELS

## TABLES

Table	Page
I.1 MAJOR EVALUATION REPORTS AND DATA SOURCES .....	8
I.2 MAJOR FINDINGS ON EARLY STW IMPLEMENTATION .....	11
II.1 COVERAGE OF STW PARTNERSHIPS IN IMPLEMENTATION GRANT STATES, FALL 1996 .....	16
II.2 CHARACTERISTICS OF DISTRICTS IN AND NOT IN LOCAL STW PARTNERSHIPS IN STATES WITH LESS THAN 50 PERCENT COVERAGE .....	20
II.3 PARTNERSHIP STWOA GRANT FUNDING AMOUNTS .....	22
II.4 SCALE OF LOCAL STW PARTNERSHIPS, BY STATE .....	25
II.5 PARTNERSHIP COMPOSITION IN FALL/WINTER 1996 .....	35
II.6 REPRESENTATION ON GOVERNING BOARDS IN SCHOOL YEAR 1996-1997 .....	39
III.1 CAREER AWARENESS AND DEVELOPMENT ACTIVITIES IN COLLEGES AND ALTERNATIVE EDUCATION .....	51
III.2 AVAILABILITY OF WORKPLACE ACTIVITY IN SCHOOL YEAR 1995-1996 .....	63
III.3 WORKPLACE ACTIVITY ARRANGED BY ALTERNATIVE EDUCATION PROVIDERS: AVAILABILITY AND PARTICIPATION IN SCHOOL YEAR 1995-1996 .....	68
III.4 BUSINESS AND INDUSTRY SUPPORT PROVIDED TO SCHOOLS IN SCHOOL YEAR 1995-1996 .....	75
IV.1 SCHOOL-TO-WORK COMPONENTS AS DEFINED IN 12TH-GRADE STUDENT SURVEY .....	82
IV.2 EXTENT OF CAREER-FOCUSED ACADEMIC COURSE TAKING .....	86
IV.3 STUDENT PARTICIPATION IN THREE STW COMPONENTS, BY SCHOOL PERFORMANCE AND PROGRAM .....	92

## **TABLES** *(continued)*

<b>Table</b>	<b>Page</b>
IV.4 STUDENT PARTICIPATION IN PAID AND UNPAID WORK EXPERIENCE ACTIVITIES, BY CLASS RANK .....	94
IV.5 PROGRAMS OF STUDY OF STUDENTS IN CAREER MAJORS, BY ACADEMIC ACHIEVEMENT IN NINTH GRADE .....	96
IV.6 PARTICIPATION IN THREE STW COMPONENTS, BY STUDENT BACKGROUND .....	98
IV.7 STUDENT PARTICIPATION IN PAID AND UNPAID WORK EXPERIENCE ACTIVITIES, BY GENDER AND RACE/ETHNICITY .....	99
IV.8 STUDENT AWARENESS OF AND PARTICIPATION IN SCHOOL WORK EXPERIENCE PROGRAMS, BY GENDER AND RACE/ETHNICITY .....	101
IV.9 INDUSTRIES PROVIDING POSITIONS TO MALE AND FEMALE STUDENTS .....	104
IV.10 STUDENT PARTICIPATION IN CAREER MAJORS, BY URBANICITY AND NINTH-GRADE GPA .....	113
V.1 STUDENT PARTICIPATION IN ALL THREE STW COMPONENTS, BY STUDENTS' BACKGROUND .....	126
A.1 FALL 1996 LOCAL PARTNERSHIP SURVEY COMPLETION RATES .....	139
B.1 CHARACTERISTICS OF STUDENT SAMPLE .....	143
C.1 ESTIMATED PROBABILITY OF PARTICIPATING IN STW COMPONENTS RESULTS FROM MULTIVARIATE MODELS .....	149

## FIGURES

Figure		Page
II.1	OTHER INITIATIVES FORMALLY LINKED TO SCHOOL-TO-WORK GOVERNANCE .....	32
II.2	LEAD ORGANIZATION IN PARTNERSHIP .....	38
III.1	CAREER AWARENESS AND DEVELOPMENT ACTIVITIES IN SCHOOL YEAR 1996-1997 .....	47
III.2	DEFINITION AND PREVALENCE OF CAREER MAJORS IN SCHOOL YEAR 1996-1997 .....	55
III.3	CURRICULUM INTEGRATION STRATEGIES IN SCHOOL YEAR 1996-1997 .....	57
III.4	CHANGES IN GRADUATION REQUIREMENTS SINCE JULY 1994 .....	59
III.5	STUDENT ENTERPRISES: CHARACTERISTICS AND PREVALENCE IN SCHOOL YEAR 1995-1996 .....	66
III.6	SECONDARY-POSTSECONDARY LINKAGES IN SCHOOL YEAR 1996-1997 .....	71
IV.1	PARTICIPATION IN CAREER DEVELOPMENT ACTIVITIES GRADES 9-12 .....	84
IV.2	POSITIONS LINKED TO SCHOOL BY ASSIGNMENT AND GRADE .....	89
IV.3	STUDENT PARTICIPATION IN KEY COMPONENTS, BY URBANICITY..	110
IV.4	STUDENT PARTICIPATION IN CAREER DEVELOPMENT ACTIVITIES, BY URBANICITY .....	111
V.1	HIGH LEVELS OF PARTNERSHIP IMPLEMENTATION OF KEY STW COMPONENTS .....	120
V.2	STUDENT INVOLVEMENT IN KEY STW COMPONENTS IN MEMBER HIGH SCHOOLS .....	123



## I. INTRODUCTION

The School-to-Work Opportunities Act of 1994 (STWOA) was enacted to provide initial support for state and local efforts to change the way American schools educate and prepare youth for careers. The federal legislation provides grants to states, which in turn fund local partnerships of educators, employers, labor organizations, and others. These partnerships are intended to promote new relationships among institutions that can, in turn, lead to improved student learning--both at school and at employer workplaces. In schools, school-to-work (STW) initiatives are expected to help students explore their emerging career interests and follow challenging educational paths to their career goals, in part through "career majors" that integrate academic and vocational instruction in a broad career area. STW partnerships are to extend students' learning opportunities to employer workplaces, linking these workplace experiences to students' school studies and chosen career majors. The result of these efforts is intended to be a system of educational practices, activities, and programs that encompasses all students. Federal "seed money" funding has been provided to help states and local partnerships develop STW systems. Through 1996, the federal government had awarded about \$643 million to 37 states (which distributed grants to their substate partnerships), to selected local partnerships directly, and to U.S. territories.

The federal school-to-work legislation mandated a comprehensive national evaluation of states' and partnerships' progress in creating STW systems. The evaluation is being conducted by Mathematica Policy Research, Inc. (MPR) and its subcontractors, MPR Associates, Inc. and Decision Information Resources, Inc. It is being performed under contract to the U.S. Department of Education, with the support of its partners in the STW development effort, the U.S. Department of Labor and the national School-to-Work office. This report is the second in a series of annual

reports resulting from the national evaluation. In this introductory chapter, we review the aims and elements of the STWOA, summarize the overall design of the evaluation, and describe the purposes and key findings of the report.

## A. OBJECTIVES AND PROVISIONS OF THE STWOA

The STWOA envisioned a “system” that would help youths make better transitions from school to adulthood, college or training, and careers. It anticipated that local partnerships would cohesively knit together the efforts of various agencies and organizations and the diverse activities and programs that are widely viewed as conducive to the overall goal. In the process, partnerships would (1) build on a foundation of already existing programs, perhaps expanding and improving some of them; and (2) create new activities and experiences for students.

The federal legislation defined STW initiatives as consisting of a school-based learning component, a work-based learning component, and a set of “connecting activities” (Title I). Provisions pertaining to school-based learning focus on two main elements: (1) activities promoting career awareness and exploration, and (2) curriculum changes aimed at creating “career majors.” For the evaluation, we therefore distinguish four main elements of STW implementation efforts for examination:

- ***Career Development.*** STW partnerships and their members are expected to promote students’ awareness of the range of careers in society, to help them understand their own interests and career options, and to begin exploring the demands and rewards of specific careers.
- ***School-Based Curriculum.*** Schools in STW partnerships are encouraged to develop “career majors” that students would select by 11th grade and to integrate academic and vocational learning in ways that expose students to all aspects of an industry related to their chosen career major. Career majors are expected to facilitate students’ progress from high school to postsecondary education and to incorporate demanding academic content standards.

- **Work-Based Learning.** The STWOA calls on partnerships to give students opportunities to learn and apply general workplace skills and more specific skills related to a career major, through internships, work experience, school-based enterprises, paid employment, and workplace mentoring.
- **Linkages.** Promoting STW opportunities is expected to require special efforts to match students with employers, help employers design workplace activities for students, train teachers and counselors on careers and workplace demands, and encourage employer participation in the overall partnership effort. Connections between secondary and postsecondary programs are supposed to be strengthened, and partnerships are expected to reach out to parents and students so that access and participation among all segments of the student population are ensured.

Each of these individual elements, of course, existed to some extent before passage of the STWOA and creation of STW partnerships. Many schools were working on developing career awareness activities and comprehensive career development programs before they became involved in STW partnerships, often encouraged by career development models developed and promoted by their state education agencies. Work-based learning activities such as cooperative education, internships, or student enterprises have long existed, although often without a strong connection to students' school-based courses. Interest in improving academic performance had already led some states, districts, and schools to try various curriculum innovations highlighted in the STWOA. Linkages of the sort encouraged by the STWOA had also been forged in earlier years, including collaboration between schools and local businesses and articulation between high school and college programs.

The new contribution of the STWOA is thus its emphasis on building a STW system. To be sure, the legislation refers frequently to "STW programs," sometimes with very specific programmatic features. However, it also stresses the larger, coherent framework in which particular programs are to fit, calling for the "creation of a universal, high-quality school-to-work transition system" (Section 3.a.2). The vision set forth in the legislation is of a comprehensive set of practices

and experiences that give all students opportunities to benefit from a coherent combination of career development activities, integrated school curriculum with some kind of career focus, workplace activities that complement the career development objectives and the school curriculum, and linkages between high school and postsecondary programs. The national evaluation of STW implementation thus examines not only partnerships' efforts to expand individual components and programs, but also how state and partnership efforts contribute to the development of this larger system framework.

## **B. THE NATIONAL EVALUATION OF STW IMPLEMENTATION**

This evaluation, in its overall scope, is addressing four broad questions about the realization of the goals of the STW legislation:

- In what ways, and how effectively, do states promote the changes envisioned in the STWOA and create a statewide STW system?
- What role do local STW partnerships play in changing the school and workplace opportunities available to students and in creating coherent STW systems?
- To what extent do STW implementation efforts change what students actually do in school?
- What kinds of education, training, and employment do students enter after high school, and how do postsecondary activities change as STW systems develop?

To address these questions, the evaluation includes three main components for documenting the changes that occur as STW implementation advances:

1. ***Local Partnership Survey (LPS)***. This survey, conducted in fall 1996, 1997, 1998, and 1999, documents the characteristics and development of all STW partnerships, the

involvement of partnership members, and overall student participation in key STW activities.<sup>1</sup>

2. ***In-Depth Case Studies.*** Site visits in 1996, 1997, and 1999 document how state and local partnership models have been planned, designed, and implemented in eight purposely selected states (Florida, Kentucky, Maryland, Massachusetts, Michigan, Ohio, Oregon, and Wisconsin) and in selected local partnerships elsewhere that received direct federal grants.<sup>2</sup>
3. ***Study of Student Experiences.*** Surveys of three cohorts of 12th-grade students (spring 1996, 1998, and 2000) in the same eight states examine their experiences in high school: formulation of career goals, involvement in classes that integrate academic and vocational instruction, participation in workplace activities, and perceptions of links between school and workplace components. High school transcripts are being used to describe the courses students take and the students who participate in particular STW activities. Follow-up surveys of the first two cohorts, about 18 months after high school graduation, will examine students' progress in postsecondary education, training, and employment.<sup>3</sup>

Although the STWOA stresses the importance of building a STW system, neither the legislation nor its history suggests what characteristics would signal the emergence of a system or how we should gauge the progress of system implementation. To focus the evaluation on system implementation as opposed to charting only the growth of specific components and programs, we

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<sup>1</sup>The fall 1996 survey (on which this report's analysis is based) was administered to 970 partnerships, including substate partnerships in the 27 states that had received implementation grants, as well as direct federal grantees. It achieved a completion rate of 91 percent (see Appendix A). The fall 1997 survey, nearly completed, includes partnerships in those 27 states and in 7 of the additional 10 states that received implementation grants in 1997. One state chose not to participate in the survey, and two had not yet awarded local partnership grants by the time of the survey. Including direct federal grantees, 87 percent of the 1,152 local partnerships responded to the second evaluation survey.

<sup>2</sup>The eight states were chosen from among the 27 states that had received federal implementation grants under the STWOA by fall 1995. States were considered only if they had already formed local STW partnerships. Of the 15 that met that criterion, 8 were chosen to include diversity with regard to region, urbanicity, and the time they received their implementation grant. Five of the selected states (Kentucky, Massachusetts, Michigan, Oregon, and Wisconsin) received grants in the first funding round in 1994, and three (Florida, Maryland, and Ohio) received grants in 1995.

<sup>3</sup>Followup of the class of 2000 cannot be accomplished within the term of the evaluation, which ends in fall 2000.

have specified five criteria for the success of system creation, which we believe reflect the intent of the legislation:<sup>4</sup>

- ***Breadth of Participation.*** Do local partnerships engage all their member schools? Do employers participate in significant numbers? Do postsecondary schools and other community entities play active roles? Do a large and diverse group of students participate in the activities promoted by the STWOA?
- ***Consistency.*** Do the members of local partnerships adopt and adhere to clear standards so that the school-based and workplace activities available to students are of consistent quality and value? Are opportunities for students consistently available across local schools within partnerships?
- ***Connectedness.*** Are STW activities disjointed programs or are they linked together in a progression that gives students opportunities to refine their career interests and acquire advanced skills? Are the partnership members developing and operating STW program components in collaboration?
- ***Continuity.*** Do partnerships and their members make STW activities established practice? Do the activities promoted by the STWOA become routine, and do they withstand disruptions (such as turnover in staff who are instrumental in early development)?
- ***Sustainability.*** Have states and local partnerships created the necessary resources to continue programmatic features and institutional linkages beyond the period of their federal STW funding? Are STW practices central to the function of schools? Do employers make involvement in STW a sustainable part of their routine operations?

## C. REPORT PURPOSES AND KEY FINDINGS

This report presents further findings about the earliest stages of STW implementation, elaborating on issues explored in the first annual report (Hershey et al. 1997). The first report was based on two sources of data: (1) a first round of site visits to local partnerships, primarily in the eight states studied in depth, conducted in spring 1996; and (2) the first student survey, administered to a sample of high school seniors in those states' STW partnerships in spring 1996. That first report

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<sup>4</sup>These characteristics of a STW system were proposed as indicators of implementation progress in the first annual report of the national STW evaluation (Hershey et al. 1997).

presented what must be interpreted as a “baseline view” of STW implementation, for several reasons. Several of the states and partnerships included in the case studies had either not yet or only recently received implementation grants. The first student survey included students whose high school years had largely preceded any changes that might have been advanced by federal STW funding. To be sure, many partnership schools were already developing particular STW components before passage of the STWOA and the creation of STW partnerships, but the first round of data collection and analysis still, in most places, preceded the kind of coherent system-building efforts envisioned in the STWOA.

This second report provides further analysis of the same early stage of STW implementation, using additional data and new analyses of previously available data (Table I.1). It draws on two sources. Much of the analysis for this report is based on the first LPS, begun in fall 1996 and concluded in winter 1997. Most questions in the first LPS referred to implementation status in fall 1996. However, a few questions--those focusing on the extent of student and employer participation in STW activities--referred to the previous school year (1995-1996). The report also draws on the first student survey of 12th graders--the same survey already used in the previous report. This report presents further analyses of the survey data, in conjunction with newly available data from the students' high school transcripts. Both the LPS and student data thus present new perspectives but pertain largely to the same early period of STW implementation.

Later evaluation reports will more clearly identify changes from this early stage of STW implementation. Later in 1998, we will analyze the second LPS, conducted in fall 1997, and it will be possible to report on the changes observed between the first and second partnership surveys. The second survey of 12th graders in the eight states studied in depth will be completed in spring 1998,

TABLE I.1  
MAJOR EVALUATION REPORTS AND DATA SOURCES

Reports	Survey of Seniors <sup>a</sup>			Postsecondary Follow-Up of Seniors <sup>a</sup>			National Local Partnership Survey					Case Study Site Visits <sup>a</sup>			
	1996	1998		1996	1998		1996	1997	1998	1999		1996	1997	1998	1999
1996 Annual Report	✓											✓			
1997 Annual Report	✓						✓					✓	✓		
1998 Report to Congress	✓	✓		✓			✓	✓				✓	✓	✓	
1999 Annual Report	✓	✓		✓			✓	✓	✓			✓	✓	✓	
Final Report	✓	✓		✓	✓		✓	✓	✓	✓		✓	✓	✓	✓

<sup>a</sup>Data collected in the eight states selected for in-depth study: Florida, Kentucky, Maryland, Massachusetts, Michigan, Ohio, Oregon, and Wisconsin.



and it will be possible to report on changes in the pattern of students' high school experiences between the class of 1996 and the class of 1998.

The analyses presented in this report pertain to three of the six key system-building issues: the *breadth* of participation, the *consistency* of STW system features, and the *connectedness* of students' experiences and partners' implementation efforts. Chapters II through V address these issues in the following ways:

- ***Chapter II: Developing the STW Infrastructure.*** Chapter II examines the breadth of participation in local STW partnerships of key parties such as employers, labor organizations, and schools, using data from the LPS.
- ***Chapter III: The Availability of Key STW Components.*** Chapter III focuses on the consistency with which key STW components are being made available to students. LPS data are used to characterize the prevalence of various career development opportunities, career majors, curriculum integration efforts, and work-based learning across partnerships, including an assessment of how routinely these STW components are available at schools within partnerships. Certain aspects of connectedness are also explored in Chapter III. LPS results are presented on the involvement and roles of employers in schools and on the extent to which partnerships and schools are linked to postsecondary institutions and programs.
- ***Chapter IV: Student Participation in STW Activities.*** Chapter IV presents findings concerning the breadth of actual student participation in STW components, including the overall level of involvement and the diversity of the participants. The connectedness of students' experiences is explored with analyses of the variety and range of career development activities that students engage in and of the linkages between students' workplace activities and their school program. Findings are based primarily on analysis of the 12th-grade survey and high school transcripts for the representative sample of high school seniors in the class of 1996 in the eight in-depth study states.
- ***Chapter V: Connecting the Parts of a STW System.*** This final chapter takes a broader look at the prevalence of STW components and student participation to measure the beginnings of system implementation. LPS findings are presented about the connectedness of STW component availability, based on analyses of how thoroughly within partnerships the member schools have implemented all the major STW components. Connectedness from the student perspective is also examined with analyses of the extent to which students engage in the full range of STW components and of which students do so. The chapter concludes with observations about how implementation progress in later years could become evident in evaluation data.

The results presented in this report are still only an early part of the story of STW implementation. They provide the basis for characterizing change and progress in the coming reports, as data become available from further rounds of the partnership survey, the surveys of later cohorts of high school students and postsecondary follow-up surveys, and the second and third cycles of site visits to local partnerships included in the in-depth study. Table I.2 presents the major findings of the analyses completed for this report.

TABLE I.2

## MAJOR FINDINGS ON EARLY STW IMPLEMENTATION

***A widespread partnership structure has been created in most states.***

Of the 27 states that received early STWOA implementation grants, 10 had established partnerships statewide by July 1996 and most others were in the process of doing so. Although educators most often play the leading role in coordinating local partnerships, business representatives do participate widely in STW governing boards, create workplace activities for students, and provide resources and advice to schools. The most common forms of employer involvement--reported in 53 percent of all partnership high schools--are traditional roles, such as speaking about careers in classrooms or at career fairs (see Chapters II and III).

***Career development activities engage most students; other STW elements are less pervasive.***

Even before the STWOA, efforts to promote career development were part of some state education reforms and local district initiatives. This head start is reflected in the relative prevalence of STW components in early implementation. In fall 1996, partnerships reported that more than 60 percent of their high schools offered at least one career development activity, 58 percent offered work-based learning opportunities for some students, and 47 percent offered at least some students a way to organize their courses around a career goal. Actual availability, however, is less common, as indicated by the relatively few students participating. A survey of 1996 seniors in eight states showed that, although 63 percent had a varied range of career development activities, only 12 percent had a career focus for their studies, and 16 percent had any workplace experience that was linked to their school program (see Chapters III and IV).

***Early STW activities involved a diverse mix of students, but higher performing students were most likely to perceive their studies as organized around a career goal.***

Students with varying skills and characteristics are involved in STW activities, with participation rates in specific components differing by group. In 1996, higher-achieving students were somewhat more likely than students with lower grades and attendance to view at least some of their academic classes as specifically addressing their career interests--one feature of career majors. Work-based learning linked to the school curriculum engaged more females than males. Students from urban schools were less likely than other students to be involved in career development or to have a career focus for their studies (see Chapter IV).

***In 1996, few schools offered and few students were involved in all key STW components.***

About 13 percent of all partnerships reported widespread availability of all key STW features--career development, career majors, and workplace activities--in ways that could engage individual students in all three. Only two percent of seniors were involved in all three components, however. Multicomponent participation was highest among vocational students, students in urban and rural areas, and those with relatively good attendance (see Chapter V).

## II. THE LOCAL PARTNERSHIP INFRASTRUCTURE

Local partnerships are a central ingredient in STW system building. The STWOA stresses collaboration among schools, employers, postsecondary institutions, and other groups in statewide systems of partnerships that are to be “responsible for STW programs.” Although the method of organizing and operating partnerships is left to state and local discretion, partnerships were clearly intended to be more than channels for distributing federal funding to members. Since STW grants are only “seed money,” an important eventual question for this evaluation is whether they help create a widespread infrastructure for STW development that can function beyond the period of federal funding.

At this stage and in this report, however, we offer an early view of the organization of the partnerships fostered by the STWOA. We report here on the formation, composition, and leadership of local partnerships as described in responses to the fall 1996 LPS, as a starting point for describing trends based on later rounds of the LPS. We use insights developed in partnership site visits in the eight in-depth evaluation states to help interpret some survey findings. Three main findings emerged:

### ***Main Findings About Local STW Partnerships***

- ***A widespread partnership framework has been created in most grantee states.*** Of the 27 states that received implementation grants in 1994 and 1995, 10 had established partnerships statewide by July 1996, and most others were in the process of doing so.
- ***Partnership structures reflect diverse conceptions of what a partnership is and how it should function.*** States have diverged in their emphasis on partnerships as a vehicle for ongoing collaboration among partners in a geographically defined area and on the importance of aligning partnerships with other education collaboratives.
- ***Educators play the most prominent roles in local partnerships.*** Employers participate widely in STW boards and provide workplace activities, but educational institutions more often play lead roles in STW implementation.

## A. PARTNERSHIP FORMATION

Achieving the goals of the STWOA rests on the creation of statewide structures of local partnerships that, eventually, will provide all communities with opportunities to adopt and adapt a STW approach. Although framers of the legislation acknowledged that not all communities would develop STW systems to the same degree or in the same way, they expected that states would include substantial portions of their towns and cities in the partnerships they fund with STWOA grants. In fact, state plans submitted under the STWOA were required to specify a strategy for expanding STW partnerships over time to cover all geographic areas, including both urban and rural locales. This requirement underscored the federal commitment to ensure that STW development include a broad range of communities, families, and students.

In the first 27 states to receive STW implementation funding (awarded in 1994 and 1995), the creation of local partnerships had progressed far enough by late 1996 to allow general observations on the overall characteristics of the partnership infrastructure.<sup>1</sup> Three aspects of this infrastructure are particularly noteworthy:

- The degree to which statewide coverage has been achieved
- The extent to which some types of communities might have been favored in states where partnership creation was accomplished in steps
- The magnitude of funding made available to local partnerships

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<sup>1</sup>Findings here are based on the LPS of fall 1996, which included the first 27 grantee states and local partnerships elsewhere funded directly by the federal government. The fall 1997 LPS was expanded to include additional states; its results will be reported later in 1998.

## 1. Statewide Partnership Coverage Was Already Achieved or Nearly Achieved in Most States

The first step in developing STW systems is creating local partnerships. Most states have chosen to fund local partnerships in stages. Although states have typically provided all existing partnerships with some planning or development funds, they have generally awarded large implementation grants in the earlier stages to partnerships that appear to have the strongest plans for operationalizing STW initiatives. Some states had an explicit policy of creating and funding partnerships incrementally; they used a competitive grant process as an incentive for communities and schools interested in forming partnerships to take concrete implementation steps or at least present a plan for STW in advance of the more substantial funding awards.

By fall 1996, efforts by the first 27 grantee states had already created widespread institutional structures for STW (Table II.1). Partnerships had been awarded implementation grants in 26 of the 27 states.<sup>2</sup> Overall, the partnerships included more than 70 percent of all school districts in those states, and the districts in those partnerships serve 76 percent of all secondary students.<sup>3</sup> Thus, the vast majority of students overall in those 27 states already had at least the *potential* to be involved in STW activities, if those activities were made available throughout the member schools of STW partnerships. However, these overall figures mask considerable differences in partnership coverage across states; states at that time were in varying stages of establishing partnerships.

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<sup>2</sup>At the time of the first partnership survey in 1996, Idaho had not yet awarded any substate partnership grants. The only funded partnership at the time was one that had received a direct federal grant.

<sup>3</sup>These figures represent overall likely partnership coverage. Estimates were computed by dividing the percentage of districts or secondary students as reported by responding partnerships by the survey response rate. This adjustment assumes that partnerships that did not respond to the survey had, on average, the same number of districts and students as responding partnerships.

TABLE II.1  
COVERAGE OF STW PARTNERSHIPS IN IMPLEMENTATION GRANT STATES,  
FALL 1996<sup>a</sup>

State	Number of Partnerships Formed	Percentage of Districts Included	Percentage of Secondary Students in Partnership Districts
Alaska	24	49.1	87.8
Arizona	14	96.9	94.6
Colorado	35	31.6	75.7
Florida	29	95.9	93.6
Hawaii	25	100.0	--
Idaho <sup>b</sup>	1	5.7	2.2
Indiana	16	89.6	83.8
Iowa	131	47.7	50.8
Kentucky	22	99.1	87.7
Maine	24	84.5	61.0
Maryland	12	95.1	99.9
Massachusetts	41	92.2	70.6
Michigan	27	93.4	87.2
Nebraska	14	57.4	65.7
New York	56	84.9	99.9
New Jersey	18	39.6	17.6
New Hampshire	36	46.4	39.2
North Carolina	60	80.1	75.3
Ohio	46	52.2	57.3
Oklahoma	15	45.2	32.8
Oregon	15	97.8	84.2
Pennsylvania	53	83.2	77.7

TABLE II.1 (continued)

State	Number of Partnerships Formed	Percentage of Districts Included	Percentage of Secondary Students in Partnership Districts
Utah	10	92.5	92.0
Vermont	14	31.4	7.9
Washington	71	71.7	85.2
West Virginia	28	48.2	60.9
Wisconsin	31	99.5	85.1
<b>All 27 States<sup>c</sup></b>	<b>868</b>	<b>70.2</b>	<b>76.4</b>

SOURCE: STW Local Partnership Survey (LPS), fall 1996, Mathematica Policy Research, Inc.

<sup>a</sup>Estimates based on responding partnerships' data were adjusted to reflect partnership coverage overall. By dividing the computed percentage of district or secondary enrollment by the survey response rate, we have assumed that partnerships that did not respond to the survey had, on average, the same number of districts and students as responding partnerships.

<sup>b</sup>At the time of the 1996 LPS, Idaho had not yet awarded substate partnership grants; however, a single partnership in the state was awarded a direct federal grant.

<sup>c</sup>An additional 40 partnerships in states that did not receive implementation grants were awarded STWOA funds directly by federal agencies.



Development of the STW infrastructure is clearly continuing. In fall 1996, many of the first 27 grantee states had not yet fully formed and funded partnerships; since then, they have funded new ones.<sup>4</sup> For example, Colorado increased the number of its local partnerships from 39 to 63 between 1996 and 1997. Expansion occurred in 10 of the 27 states. Most of this growth has been due to state actions to fund more substate partnerships, but the national STW office has also continued to award new direct grants to local partnerships. Beyond the 27 states included in the 1996 LPS, partnerships are also forming in the 10 states awarded federal implementation grants in fall 1996.

The extent to which this structure of partnerships includes states' school districts, of course, provides little indication of the depth of STW implementation. School districts vary widely in how deeply involved they are in STW implementation, and the number of students involved in STW activities varies from school to school. The extent to which partnerships are actually making STW activities available to students is discussed in Chapter III, and actual levels of student participation are discussed in Chapter IV.

## **2. Partnership Formation Has Included Diverse Communities of All Economic Levels**

The STWOA encourages the involvement of a broad set of communities, families, and students.<sup>5</sup> Although some early proponents viewed STW as an approach most appropriate for students not

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<sup>4</sup>Information on partnerships in fall 1997 was provided by state STW directors as input for creation of the partnership sample for the second partnership survey. Detailed data about partnerships from that second survey are not yet available for inclusion in this report; however, they will be included in the next evaluation report.

<sup>5</sup>Unlike other federal education programs, the STWOA contains no special provisions for targeting funds to particular types of locales. It does, however, acknowledge the special challenges of implementing STW reforms in high poverty urban and rural areas, and in Indian reservations and other communities with schools funded by the Bureau of Indian Affairs. Separate funding streams help support STW initiatives in these areas.

likely to earn a four-year degree, others increasingly advocate that STW reforms include all or most students. If partnerships and their members are expected to carry out the work of developing STW systems--whether for all or for some students--then the kinds of districts and communities that are included in the partnerships help to determine which students are likely to become involved.

It is therefore important to consider whether the manner in which states are forming local partnerships has favored, excluded, or delayed STW implementation in particular types of communities. Although partnerships often include diverse communities, some consist predominantly of lower- or higher-income school districts, and some are predominantly urban, rural, or suburban. Even if not by intent, states' strategies for funding substate partnerships could have given greater or earlier access to STW resources to partnerships in some of these categories. For example, if partnerships were more likely to form, or were funded earlier, in wealthier suburban areas of a state than in other areas, it could be argued that STW in that state has effectively favored more advantaged students. Of course, if the goal is to create statewide STW systems, eventually all districts will be included in STW efforts. Thus, the characteristics of partnerships at any given time may not fully reflect state long-term objectives.

Our analysis suggests, however, that early partnership formation included a broad set of districts and communities and did not generally favor particular types. Even in 1996, partnership communities overall were much like communities that were not members of STW partnerships. To a great extent, this similarity is due to the strategy followed by many states of creating partnerships, at the outset or in very short time, that included virtually all their school districts. However, even in states that have taken an incremental approach to forming STW partnerships, there is little evidence of differences between districts that were and were not in local partnerships by fall 1996 (Table II.2). In states whose partnerships in fall 1996 covered fewer than half their school districts,

TABLE II.2

**CHARACTERISTICS OF DISTRICTS IN AND NOT IN LOCAL STW PARTNERSHIPS  
IN STATES WITH LESS THAN 50 PERCENT COVERAGE**

	Percentage of Districts	
	In STW Partnerships	Not in STW Partnerships
<b>Race/Ethnicity</b>		
White	72.9	76.8
African American	11.2	8.7
Asian	2.4	3.3
Native American	3.0	4.5
Latino	10.5	6.7
<b>Urbanicity</b>		
Urban	4.6	1.9
Suburban	30.7	31.6
Rural	64.7	66.5
<b>Percentage of Population Below Poverty Level</b>		
0 to 5	14.5	18.2
6 to 10	27.0	21.8
11 to 15	22.3	27.1
16 or More	36.1	32.9

SOURCE: STW Local Partnership Survey (LPS), fall 1996, Mathematica Policy Research, Inc. and NCES Common Core Database.

for example, the racial/ethnic composition of the student population in STW partnership districts is about the same as in districts that had not yet become part of funded partnerships. Districts in partnerships contained about the same percentage of households with incomes below the federally defined poverty level as districts not included in partnerships. The urbanicity of partnership districts is similar to that of districts not in partnerships.

### **3. Partnership Funding Levels Encourage Capacity-Building, Slightly Favor Poorer Communities**

STW implementation grants were not intended to be a major funding source for local educational programs, nor were they intended to pay for compensatory services to disadvantaged youth.<sup>6</sup> Partnership grants and STW funding in general are intended as a way to get partnerships formed and to instill a “systems approach” to developing STW program components. Therefore, they ought not to be expected to constitute a major infusion of funding for local educational programs. Nor should we expect that STW grant amounts would have strongly favored lower-income communities. Such a finding would contradict the emphasis in the STWOA on a system accessible to all students and could even trigger or aggravate perceptions that STW is in fact just for lower-performing students.

Early STW grants to local partnerships were indeed modest in the context of overall education spending. On average, partnership grants through early 1996 provided funding that, if disbursed entirely to member school districts, would give them an average of about \$22,678 per year (Table II.3), or about \$3.84 per student (elementary and secondary per year). Even if state and local sources contribute \$2 for every \$1 in federal funding for STW, as early reports from some states suggested (U.S. Department of Education and U.S. Department of Labor 1996), the amount of early funding

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<sup>6</sup>The exception is that the STWOA authorized direct federal grants to urban and rural high poverty areas and Native American STW partnerships. Together, these categories account for about \$117,500,000 in total STWOA funding between 1994 and 1996, or about 19 percent of total STW grants.

TABLE II.3  
PARTNERSHIP STWOA GRANT FUNDING AMOUNTS

Partnership Characteristics	Number of Partnerships	Average Annualized Grant (in Dollars) <sup>a</sup>	
		Per Student <sup>b</sup>	Per District
All	828	3.84	22,678
Metropolitan Status			
Urban	116	2.65	85,229
Suburban	301	3.78	19,767
Rural	411	7.04	15,503
Percent of Population Below Poverty Level			
0 to 5	62	2.91	15,660
6 to 10	228	3.59	20,090
11 to 15	277	3.84	17,611
16 or more	217	4.84	36,603
Size (Number of High Schools)			
1	192	3.26	38,378
2 to 5	236	3.29	43,470
6 to 15	267	4.16	25,326
15 or more	133	4.00	15,244

SOURCE: STW Local Partnership Survey (LPS), fall 1996, Mathematica Policy Research, Inc. and NCES Common Core Database.

<sup>a</sup>Annualized grant amounts were calculated by summing all STWOA funds received by each partnership up to summer 1997, dividing by the total number of months for which grants were awarded, and multiplying by 12.

<sup>b</sup>Annualized grant amount divided by the total number of elementary and secondary students enrolled in partnership districts.

available for STW planning and implementation was still quite small relative to overall elementary and secondary expenditures per pupil in school year 1995-1996--about \$6,200 (Digest of Education Statistics 1996). Funding levels in urban partnerships are higher in one sense--amounting to an average of about \$85,000 per district--but given the greater scale and complexity of urban districts, even that level of funding is clearly more suitable to partnership building than to funding any substantial creation or enhancement of ongoing programs.

To the extent that any variation can be noted in the funding available to partnerships, it slightly favors partnerships with more low-income students. In the first 27 grantee states, those partnerships whose schools serve areas where income is below the poverty line for less than 10 percent of the population received average STW grants amounting to between \$2.91 and \$3.84 per student in the overall school population. Schools serving areas with a higher incidence of poverty had received grants that on average ranged from \$3.84 to \$4.84 per student.<sup>7</sup>

## **B. THE STRUCTURE OF LOCAL PARTNERSHIPS**

The STWOA gave considerable discretion to states in creating local partnerships. How they used this discretion, and the nature of the partnerships that were formed as a result, may have important implications for the longer-term significance of partnership roles in implementing and sustaining STW system features and functions.

Three issues have affected how local STW partnerships have been formed:

- ***State Directiveness Versus Local Alliance Formation.*** Some states have adopted explicit statewide strategies and defined how the state would be divided into partnership

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<sup>7</sup>Average grants per student were determined using an “annualized” total of each partnership’s grants received between 1994 and 1996, total student population (elementary and secondary) in and the metropolitan status of each partnership’s schools in school year 1994-1995 as reported by the National Center for Education Statistics, and poverty rates in the general population based on census data for 1990.

areas, while others have allowed for a more spontaneous "bottom-up" process in which natural alliances emerged among local partners.

- ***Strength of Existing Substate Entities.*** Preexisting definitions of substate jurisdictions relevant to education or workforce development could provide a basis for defining STW partnerships (for example, Tech-Prep consortia, intermediate school districts or service areas, economic development regions, labor market planning areas). Where existing substate entities are used, which ones are favored as the basis for defining STW partnerships sometimes depends on whether the leading role at the state level is taken by an education or by a workforce development agency.
- ***Advantages of Small Versus Large Scale.*** From both the state and local perspective, a trade-off can be recognized between the advantages of small, localized partnerships whose members work closely together and those of larger partnerships that encompass more diverse school districts and employers and enjoy economies of scale in partnership functions. Strong traditions of local control of education can also play a role.

The partnerships that have so far been formed in the first 27 grantee states reflect the interplay among these three factors. They vary in three dimensions whose consequences are examined below:

- (1) the size and complexity of partnerships, (2) the geographic clarity of partnership definitions, and
- (3) the relationship between partnership definitions and other educational collaboratives.

### **1. Partnership Size Affects Options and Challenges**

The manner in which states guided partnership formation resulted in local STW partnerships of varied size (Table II.4). Some state agencies were quite prescriptive, identifying the geographic boundaries and set of communities that would shape STW partnerships. In others, such as Wisconsin, partnerships were encouraged to form themselves in whatever way would best reflect local needs and the local labor market and ensure the organizational and financial capacity to develop STW components. As a result of diverse state guidelines and priorities, the typical partnership size in 1996, as measured by the number of high schools involved, ranged from 1 or 2 in some states (Hawaii and Iowa) to nearly 25 in others (Indiana and Michigan). Partnerships overall included an average of close to nine high schools. Not surprisingly, the average number of

TABLE II.4  
SCALE OF LOCAL STW PARTNERSHIPS, BY STATE

State	Average Number Per Partnership	
	Secondary Schools <sup>a</sup>	Secondary Students <sup>a</sup>
Alaska	3.6	1,241
Arizona	14.6	15,609
Colorado	4.9	5,925
Florida	13.4	22,216
Hawaii	1.0	1,138
Iowa	2.0	866
Idaho	6.0	1,572
Indiana	24.0	17,666
Kentucky	16.1	8,186
Massachusetts	8.0	5,602
Maryland	14.8	17,386
Maine	5.6	1,622
Michigan	24.4	16,598
North Carolina	4.7	3,928
Nebraska	14.0	4,923
New Hampshire	2.5	1,236
New Jersey	9.9	8,405
New York	14.2	31,137
Ohio	12.1	10,677
Oklahoma	16.2	4,242
Oregon	16.3	8,743
Pennsylvania	11.4	8,081
Utah	11.3	11,199



TABLE II.4 (*continued*)

State	Average Number Per Partnership	
	Secondary Schools <sup>a</sup>	Secondary Students <sup>a</sup>
Vermont	6.2	1,133
Washington	5.3	4,587
West Virginia	3.8	2,141
Wisconsin	14.3	8,460
<b>All 27 States</b>	<b>8.5</b>	<b>7,775</b>

SOURCE: STW Local Partnership Survey (LPS), fall 1996, Mathematica Policy Research, Inc. and NCES Common Core Database.

<sup>a</sup>“Secondary” here includes only the high school level.

secondary-age students in partnership communities varied widely as well, ranging from 2,319 in predominantly rural partnerships to about 23,730 in predominantly urban partnerships.

Actual partnership characteristics make it clear that states have reached different decisions about the appropriate scale of local STW collaboration and the method of achieving the right balance between local initiative and broader coordination. Some continue to consider this issue and even reshape their conception of the local partnership. In the state of Washington, for example, early development grants were at first awarded to small partnerships consisting of just one or a few school districts, but in subsequent rounds of partnership funding, the state's guidance has emphasized larger consortia that consist of multiple districts. Several states chose to define both small local partnerships and regional alliances that would link together subsets of small partnerships in larger-scale cooperation.

Visits to the in-depth evaluation partnerships in eight states suggest that the scale of STW partnerships may affect STW system building in important ways. The larger the partnership, the harder it is for the members to develop ongoing working relationships, and the less likely it is that individual communities view themselves as connected to the others. On the other hand, large partnerships have more resources to draw on: more employers in more industries and, often, a wider range of postsecondary institutions and programs. Larger partnerships can also take advantage of economies of scale: they can arrange STW activities more efficiently than a small partnership could for a large group of faculty or employers. The outcome of these trade-offs is likely to be different in different contexts. However, as federal STW funding approaches its end, it is unclear whether these advantages of larger partnerships can be sustained, since large partnerships typically depend on at least a core staff to orchestrate the kinds of partnershipwide efforts that exploit the advantages

of scale. Later rounds of the LPS and in-depth evaluation site visits will provide clearer answers about how partnerships of different sizes maintain their functions.

## **2. Lack of Geographic Focus Can in Some Cases Weaken Ongoing Collaboration**

If partnerships are to have some long-term significance as a focus for ongoing collaboration, their membership should be clear, stable, and approximately consistent with the pattern of other relationships that are useful both to partnerships and to students. Shifts, realignments, or overlaps in institutional relationships, as we have observed in some communities, can make it difficult for members of STW partnerships to establish effective communication and to concentrate on STW development. If schools and employers are expected to collaborate successfully, they must have clear information about the collaboration they are part of.

If partnerships are to sustain STW coordination, it is reasonable to expect that they would be formed with clear definitions of the area served and the local institutions that make up their membership. Defining partnerships with clear geographic boundaries, and including or seeking to include all the key institutions and organizations in that area as partners, can help promote sustained collaboration on a comprehensive STW implementation strategy. To the extent that partnership definitions correspond to the same geographic areas and encompass the same institutions that are involved in collaborations on closely related initiatives (such as Tech-Prep, workforce development, or state school reform), financial and staff resources intended for coordinated use can be used efficiently.

For the most part, local partnerships do indeed have a geographic definition with clear and distinct membership areas, at least as defined by the school districts included. In three-quarters of all partnerships, membership includes a set of school districts that belong to that partnership and no

other. About 91 percent of all school district members of partnerships clearly belong to one partnership.

However, there are instances where the clarity with which membership is defined and partnerships' memberships are kept distinct is imperfect. A quarter of the partnerships responding to the 1996 LPS listed as members at least one school district that was also reported as a member of another partnership. In 20 of the 27 grantee states, a total of 531 school districts were purportedly members of more than one partnership.

Some of this overlapping membership may be due to respondent errors or to artifacts of the survey process, but several real aspects of partnership formation also contribute.<sup>8</sup> For example, in Ohio, many early STW grants were not awarded to geographically defined partnerships; instead, they were for specific, narrowly defined projects, like developing particular career majors or youth apprenticeship programs. Some such project grants involved multiple school districts, but some of the same districts might have been included in other project grants with different combinations of districts. In the early years of STW grants in New York, a similar practice was reported: shifting combinations of districts submitted grant proposals in successive years to obtain funding for particular projects. Federal grants awarded directly to local partnerships in other states have contributed to some apparent overlapping membership; in some cases, districts or schools with direct federal funding may be viewed by the substate partnership in their area as a member but operate separately (and be reported in the LPS) as an independent partnership.

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<sup>8</sup>Some of the overlapping membership detected in the LPS is due to measurement limitations. For example, some large districts actually include multiple partnerships that each contain distinct subsets of the district's schools; the LPS captures only the districts involved in each partnership and would therefore in this situation indicate multiple partnerships with the same district. Similarly, some of the districts reported as partnership members are area vocational districts whose feeder schools are divided among multiple STW partnerships; in this case, the vocational center district is likely to be acknowledged as a member by more than one local school district.

Where there are real overlaps, lack of clarity, or instability in membership, the cohesiveness of partnerships may suffer. Site visit observations suggest several kinds of problems. Schools or districts that are members of several partnerships may try to play a role in all, and key liaison staff may find their time and other resources stretched too thin by expectations from several directions. In some cases, it appears that the pattern of reported membership in multiple partnerships indicates a project-specific approach to partnership definition and thus to STW planning and collaboration. To the extent that any of the partnerships attempt to form a common agenda for their members, the individual district may find itself trying to accommodate two strategies developed in isolation from each other, rather than working on a comprehensive STW implementation agenda with a consistent set of partners.

Where partnerships are formed around narrowly defined projects, moreover, it can be difficult to gain a durable high-level commitment from district leadership. These grants often involve relevant staff only from particular vocational or counseling departments in developing STW components and do not require commitment or coordination at the district leadership level to mobilize a variety of resources. It is difficult to see how these highly targeted efforts will lead to broad implementation of STW systems or endure after federal funds are gone.

### **3. Alignment of STW and Other Collaboratives Is Useful but Not Yet Universal**

Where collaboration across communities and school districts is valued and taken seriously, there is often more than one education or workforce initiative for educators and employers to respond to and support. Tech-Prep consortia involve districts working with community colleges and sometimes with employers. Implementation of state curriculum content standards often calls for districts to work together and with intermediate service districts to develop plans for adapting their own curricula. Workforce development boards in some states are attempting to create comprehensive

strategies for using multiple program resources, and educators and employers from throughout the board service areas may be called upon to join in forging these plans.

The degree to which these efforts at collaboration require distinct sets of institutional relationships is another potential variable in the effectiveness of the partnership as a coordinating body. To the extent that the membership of STW partnerships and the governance structure leading STW implementation can be aligned with the array of partners involved in other closely related initiatives, lines of communication can be simplified, funding sources can be pooled and coordinated, and redundant discussion of common issues can be minimized. Given the abundance in some states, even before the advent of STW partnerships, of overlapping entities with divergent jurisdictional lines, it is often difficult to imagine alignment among all the potentially related collaborative bodies. Where options exist, however, this issue merits consideration in the formation of local STW partnerships.

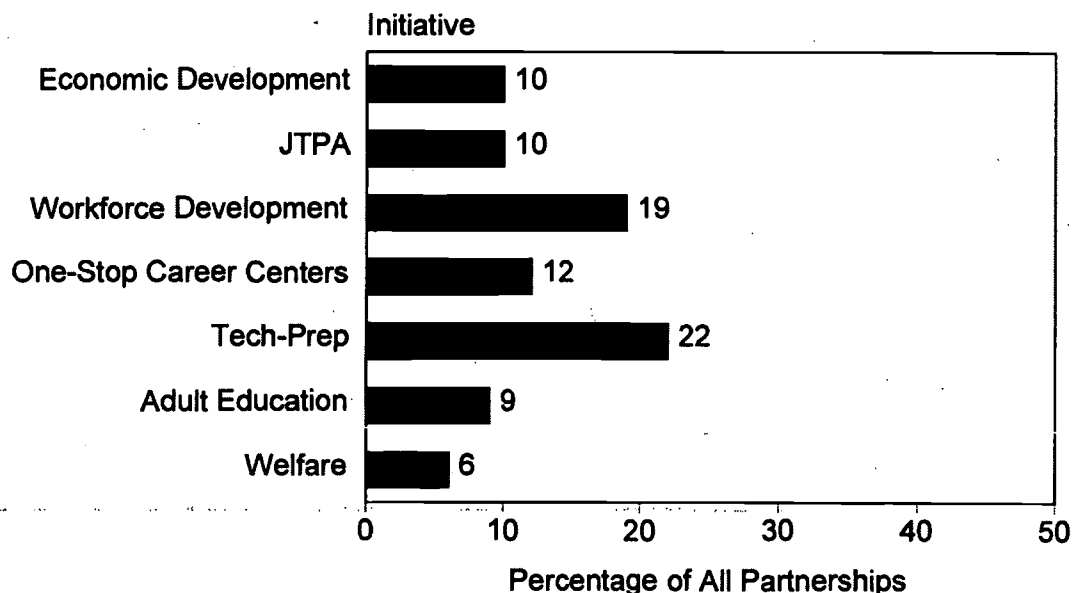
Data from the LPS suggest indirectly that aligning STW and other initiatives organizationally had been achieved in 1996 in a sizable number, but still a minority, of STW partnerships. The LPS does not provide detailed data on the geographic boundaries of STW partnerships and other collaborative entities. However, it does provide information on the extent to which the governing boards for STW partnerships also have responsibility for other related program domains. Most STW partnerships (58 percent) do not have these formal governance linkages. In 41 percent of partnerships, the STW board has no ongoing responsibility for other related educational or workforce programs. About 17 percent of partnerships, primarily those with only one or two high schools, function without governing boards.<sup>9</sup>

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<sup>9</sup>STW policy and operational decisions for these smaller partnerships may be the responsibility of regular school district personnel or a school committee.

Still, a substantial proportion of all partnerships (42 percent) have aligned local STW policy with that of at least one other initiative that requires institutional collaboration (Figure II.1). Most commonly, responsibility for STW implementation is linked to responsibility for Tech-Prep or workforce development. About 22 percent of STW partnerships have boards that oversee Tech-Prep policy and 19 percent have STW boards that are also responsible for workforce development in their area.

**FIGURE II.1**  
**OTHER INITIATIVES FORMALLY LINKED TO SCHOOL-TO-WORK GOVERNANCE**



SOURCE: STW Local Partnership Survey (LPS), fall 1996, Mathematica Policy Research, Inc.

### **C. COMPOSITION AND LEADERSHIP OF LOCAL PARTNERSHIPS**

A partnership's value and effectiveness usually depend heavily on the members it brings together, the level of cooperation they achieve, and the leadership exercised within the partnership. The STWOA called for cooperation among diverse institutions and organizations. Although the main aim was to link schools and employers, the legislation recognized the stake and potential

contributions of others. It therefore required involvement of postsecondary institutions, labor organizations, parents, and students and encouraged participation of other types of organizations.

There are different ways to be involved in a STW partnership. Organizations such as school districts, private companies, colleges and universities, labor unions, and community organizations can make a commitment to work together on broad design and operational issues affecting progress toward a common vision of a STW system. Some of the same organizations may participate in more limited or episodic ways, perhaps focusing on a particular event or function (for example, employers might host students or teachers at their workplace, or labor unions might agree to prepare curricular materials on the role of organized labor in industry). Some parties may be involved at a governance level by sitting on or even chairing a partnership board, as representatives of an organization or simply as individuals offering perspective or experience.

The direction and emphasis that STW partnerships give to various provisions of the STWOA are likely to depend on the configuration of partnership members and the sources of leadership in the partnership. We used LPS data to characterize the overall membership of partnerships, the organizations described by partnership coordinators as taking leadership roles, and the patterns of formal governance participation and leadership.

### **1. Core Education and Employer Partners Predominate in STW Partnerships**

The STWOA envisioned local partnerships as a collaboration among a broad array of institutions and organizations (Section 4[11]). At a minimum, partnerships were to include employers, school districts and postsecondary institutions, organized labor, and students. The possibility of participation by a wide range of other community, industry, government, education and training, and service organizations and agencies was also acknowledged.



Among the anticipated core types of partnership members, educators and employers are clearly playing the expected roles, but others are less consistently involved (Table II.5). Local education agencies are members of virtually every local partnership, and area vocational centers and intermediate school districts--institutions that exist in only some states--are included in about a third of all partnerships.<sup>10</sup> Some kind of postsecondary institution is found in 94 percent of all partnerships. About 95 percent of all partnerships include at least some private-sector members, from among local firms (82 percent), industry or trade associations (52 percent), or chambers of commerce (76 percent).

Among postsecondary institutions, involvement of community and technical colleges is considerably more common than that of four-year colleges and universities. Perhaps because STW in many locales is building on relationships established through Tech-Prep, 90 percent of all partnerships in 1996 involved community or technical colleges, but only 57 percent included institutions that grant baccalaureate degrees.

Organized labor, however, is less often a partnership member: only about 60 percent of partnerships reported labor union membership. As noted in an earlier evaluation report (Hershey et al. 1997), on the basis of visits to in-depth evaluation sites, the lower profile of organized labor is due to several factors described in site discussions: (1) reticence about supporting STW initiatives among some union leaders; (2) low priority placed by partnership leaders on labor participation; and (3) in some locations, the absence of strong and active local unions.

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<sup>10</sup>All partnerships responding to the survey in 1996 included at least one school district and one high school (comprehensive or vocational). A few states awarded grants to a small number of partnerships that included districts that did not contain high schools. These partnerships were excluded from the analysis, which focuses primarily on implementation of key STW components at the high school level.

TABLE II.5

## PARTNERSHIP COMPOSITION IN FALL/WINTER 1996

Type of Institution/Entity <sup>a</sup>	Percentage of Partnerships with Each Entity	Number of Each Entity	
		Total	Average Per Partnership
<b>Education Institutions</b>			
Local Education Agencies/Districts	99.8	5,122	6.2
High schools	99.3	6,375	7.7
Middle schools	90.2	6,001	7.2
Elementary schools	86.8	16,849	20.3
Vocational high schools	25.0	407	0.5
Area/Regional Vocational Districts/Centers	31.5	392	0.5
Intermediate or Regional Educational Service Districts	34.1	375	0.5
Two-Year Postsecondary Institutions	90.0	1,161	1.4
Four-Year Postsecondary Institutions	57.4	922	1.1
Alternative Education Providers	69.4	1,548	1.9
Other Educational Institutions	20.0	310	0.4
<b>Training Institutions</b>			
Proprietary Training Institutions	16.2	284	0.3
Registered Apprenticeship Agencies	29.2	484	0.3
JTPA/PIC Agencies	70.7	665	0.8
Other Training Institutions	16.9	268	0.3
<b>Business and Labor</b>			
Private-Sector Firms	82.4	13,480	16.3
Business/Industry or Trade Associations	52.1	1,717	2.1
Chambers of Commerce	75.5	1,325	1.6
Labor Unions	60.6	1,015	1.2
<b>Other Organizations</b>			
Workforce Development Boards	49.5	489	0.6
Local/Regional/State Government Agencies	78.9	2,863	3.5
Community-Based Organizations/Other Nonprofit	61.7	1,835	2.2
Parent/Student Representation	57.4	NA	NA
Other	57.5	476	0.6

SOURCE: STW Local Partnership Survey (LPS), fall 1996, Mathematica Policy Research, Inc.

<sup>a</sup>May include some double-counting across partnerships.

NA = Not available.

The concepts of student and parent participation in STW partnerships, as they might have been envisioned in the STWOA, are elusive. Although about 45 percent of local partnerships affirmed that their membership included a “student association” or “student participation,” our site visits suggest that student involvement is often reported simply on the basis of a single student’s occasional involvement in governance or promotion activities. Rarely, for example, does it appear that organizations such as student governments have a formal role in STW planning or coordination. Similarly, parents are involved in STW but not commonly through parent organizations. Field observation suggests that parents are often involved as individuals at the school rather than at the partnership level: they speak about careers in school classrooms and at career fairs or help organize group student visits to worksites.

Beyond these potential partners explicitly called for in the STWOA, there is substantial participation in local partnerships by other groups. Nearly two-thirds of all partnerships cite a community-based or nonprofit organization as a member, often a long-standing education-business alliance, a youth organization, or another kind of service provider. Almost 70 percent of partnerships include at least one alternative education provider: an organization or institution that offers at-risk students or dropouts a route to a GED or high school diploma outside the traditional school structure.

## **2. Employers Are Involved in Governance, but Educators More Often Lead STW Efforts**

Leadership can be exercised in STW partnerships in different ways. Although a variety of organizations may work together and view each other as partners, often one partner organization is relied on to coordinate activities and meetings, monitor work in progress, and ensure that details of projects are taken care of. On the other hand, leadership can also be exercised through active

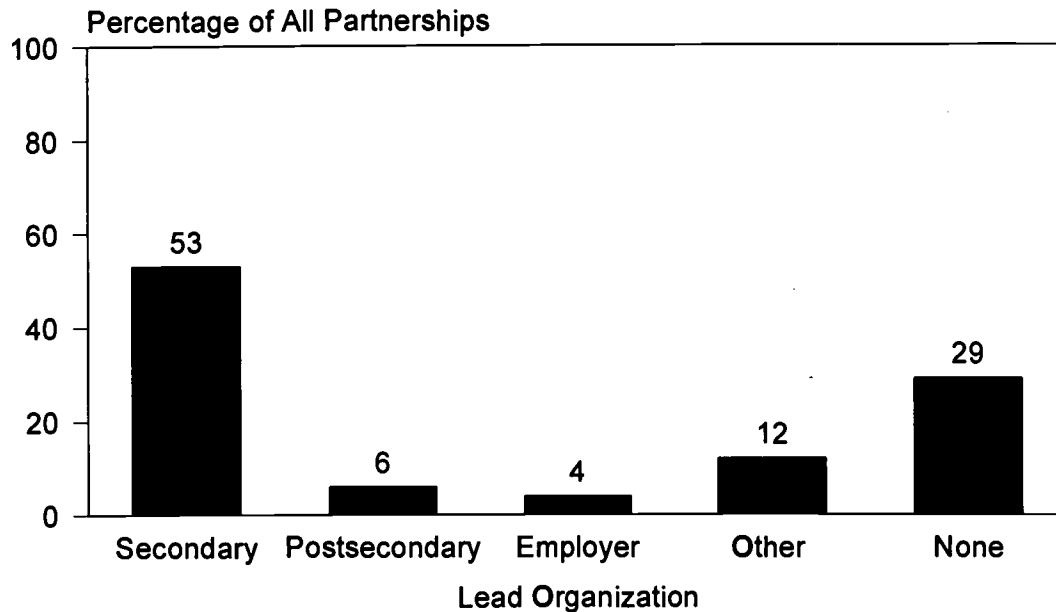
involvement and prominent roles in partnership governance boards that set policy and overall direction. Both of these forms of leadership were investigated in the LPS.

Who leads the work of STW partnerships may reflect or affect the priorities local members place on different aspects of the broad STW concept. If employer groups lead STW development, there may be more emphasis on work-based learning or on occupationally targeted training than in partnerships where educators have a dominant role. Who leads is sometimes related to the alignment of STW with other initiatives, such as workforce development or state education reform. This association could be a factor in how partnership efforts are sustained in the long run. Partnerships may benefit in some states from linking to workforce development boards that distribute a variety of state and federal funding. In other cases, where state funds are available to support education reform efforts, it can be advantageous to define a large part of the partnership role as a facilitator of education reform, with STW implementation as one aspect of change.

Leadership also influences community awareness and perceptions of STW initiatives. Some parents and employers are skeptical that STW systems run by educators will result in much change from the existing school structure. Alternatively, a small but vocal group of parents in some states fears that significant employer involvement will transform schools into job training units for big business. The visibility of employers and schools in STW system development can therefore affect support for these reforms.

Although many partnerships prefer not to single out a particular partner as playing a leading role, those who do most often identify secondary schools (Figure II.2). About 29 percent of partnership coordinators refrained from naming a single organization as leading the STW effort. In general, however, LPS responses suggest that schools are most influential in designing, developing, and coordinating partnershipwide activities. Among all partnerships, 53 percent (or 75 percent of

**FIGURE II.2**  
**LEAD ORGANIZATION IN PARTNERSHIP**



SOURCE: STW Local Partnership Survey (LPS), fall 1996, Mathematica Policy Research, Inc.

those naming a lead partner) identified a secondary or intermediate district or school as the leading organization. Another six percent of partnerships are led by a postsecondary institution. In 85 percent of all partnerships, an educational institution functions as the fiscal agent, responsible for the receipt, allocation, and accounting of STWOA grant funds. In most cases--three-quarters of all partnerships--the public school system plays this role.

Employers play an active role in partnership governing boards, but educators are more often leaders there as well (Table II.6). Although not required in the legislation, 83 percent of partnerships choose to formalize the collaboration of members through governing boards or councils that set policy and oversee STW planning and implementation. Employers are well represented: nearly 6,000 representatives of firms, chambers of commerce, or other business associations participate in

TABLE II.6  
REPRESENTATION ON GOVERNING BOARDS IN SCHOOL YEAR 1996-1997

Types of Members on Governing Board	Percentage of Partnerships with Each Type	Percentage of Partnerships with Chairperson from Each Member Type <sup>e</sup>	Number of Each Member Type	
			Total	Average Per Partnership
<b>Secondary School Districts</b>				
LEA/Vocational District Administrators	75.8	21.4	2,529	3.1
Individual School Administrators	53.9	6.6	1,438	1.7
Academic Faculty	46.7	3.6	1,456	1.8
Vocational Faculty	42.0	3.7	903	1.1
Counselors	48.3	1.9	854	1.0
<b>Postsecondary Institutions</b>				
Administrators	61.1	6.5	963	1.2
Faculty	30.9	1.1	432	0.5
Counselors	12.2	0.2	134	0.2
<b>Training Institutions</b>				
Proprietary Training Institutions	7.5	0.1	74	0.1
Registered Apprenticeship Agencies	14.9	0.2	165	0.2
JTPA/PIC Agencies	45.9	1.9	494	0.6
<b>Business and Labor</b>				
Private-Sector Firms	70.4	21.7	4,452	5.4
Business Associations/Chambers of Commerce	60.0	7.7	1,325	1.6
Labor Unions	44.1	1.2	557	0.7
<b>Other Organizations</b>				
Alternative Education Providers	29.5	0.6	343	0.4
Workforce Development Boards	30.0	2.2	494	0.6
Local/Regional/State Government Agencies	57.2	3.4	1,380	1.7
Community-Based Organizations/Other Nonprofit	39.6	2.1	918	1.1
Parents	38.0	1.1	NA	NA
Students	34.1	0.6	NA	NA
Other	62.9	3.7	3,937	4.8
No Governing Board/Chairperson Not Reported	17.6	24.2		
<b>Average Number of Board Members Overall</b>	<b>27.6</b>			
<b>Percentage of Partnerships with Employer Representatives as Majority of Board Members</b>	<b>6.3</b>			

SOURCE: STW Local Partnership Survey (LPS), fall 1996, Mathematica Policy Research, Inc.

<sup>a</sup>May sum to more than 100 percent because partnerships often have multiple chairpersons.

NA = Not available.

such boards, and about 30 percent of all partnerships have governing board chairs that represent private sector firms (22 percent) or business associations (8 percent). However, educators more often serve as board chairs: 45 percent of all partnerships have board chairs that come from secondary or postsecondary institutions. Although some states have encouraged STW partnerships to form boards with a majority of employer members, only six percent of all partnerships have done so.<sup>11</sup>

Overall, STW governing boards reflect the general intent of having broad participation in leadership. Boards have an average of 28 members, and 80 percent of partnership boards (in 65 percent of all partnerships) include reasonably broad representation from secondary and postsecondary educators and employers. However, it is also clear that in some cases, STW implementation is seen as the purview not of a broad community coalition but of a narrower group. For example, 18 percent of all partnerships identify no governing board. Another four percent of partnerships report a board that consists entirely of educators. These partnerships are generally small and include only one or two high schools. Our field experience suggests that these are partnerships where STW is defined as a school initiative and STW planning and policy decision making is assigned to a district- or school-level supervisor, as with any other school change effort.

The lead role of educators in STW system development is not surprising. Many state STW offices are explicitly trying to align STW and education reforms. They reflect this emphasis in their own leadership--in the way they create and define local partnerships, choose topics for state conferences, and prioritize measures for evaluation and monitoring. However, school leadership is evident even in states and local partnerships that have linked STW more closely with workforce

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<sup>11</sup>Private-sector representation on governing boards is heaviest in states that emphasize the role of STW in workforce development (for example, Florida, Michigan, and Kentucky).

development. Interviews with business representatives suggest that even those who play significant roles on governing boards or host students at worksites defer to local school officials when it comes to activities that directly involve students. As a result, secondary school staff in particular take the lead in developing (and, clearly, delivering) new school-based curricula, encouraging and promoting STW activities within school, matching students with workplace opportunities, implementing ways to link school- and work-based learning, and monitoring students' progress. The youth affected by STW implementation are, first of all, students in the charge of schools, so it is not surprising that the roles of educators exceed, in scope and scale, the roles of employers.



### III. AVAILABILITY OF KEY STW COMPONENTS

The aim of the STW legislation and state implementation efforts is to increase the prevalence of local collaboration, relevant educational strategies, and certain learning experiences for students. STW proponents view cooperation within local partnerships as a way to develop, expand, and knit together strategies that will improve the transitions students make to higher education and careers. Progress toward a STW system should therefore be measured in part by the extent to which local partnerships are adopting and emphasizing various STW components.

This chapter examines the extent to which local partnerships had, by fall 1996, implemented STW components, adopted practices encouraged by the STWOA, and made key activities available to students. The analysis focuses on career development and work-based learning activities for students, curriculum changes in high schools, and activities that link partners. It is based on STW practices and availability of learning experiences as reported in the fall 1996 LPS and thus presents an early view of implementation. The major findings from this analysis are:

#### ***Main Findings About Availability and Prevalence of STW Components and Practices***

- Among key STW components and practices, career development is most broadly available at early stage. In 1996, about 73 percent of all partnership schools offered at least one career awareness or development activity to students, 58 percent provided some students with a work-based learning opportunity, and 47 percent made some type of career-focused course sequence ("career major") available. Both site visits and surveys of students suggest that, of the three major components, career development is considerably more prevalent in partnership schools, when the number of students involved is taken into account.
- ***Employer engagement in schools is already widespread.*** Business and industry were, even in 1996, already working with many American high schools. Individual schools collaborate with employers in different ways and to different degrees. Having employer staff speak in classrooms or participate in career fairs--long-standing, traditional forms of support--was most common (in 53 percent of partnership schools).

Analysis of implementation using the LPS data provides two indicators of progress toward creating a STW system: the *prevalence* and the *consistency* with which these components are put in place within and across partnerships. We know from site visits to local partnerships in the eight in-depth study states that there is wide variation in implementation approaches and priorities even among members of the same local partnership. These differences suggest that systematic measurement of implementation across all states should be based not only on practices reported at the partnership level, but also, to the extent possible, on variations within partnerships. In this chapter, therefore, we have emphasized, as the key measure of “availability,” the proportion of partnership schools implementing each of several key features. By “schools,” we mean comprehensive, academic, or vocational high schools or regional vocational centers serving secondary students.<sup>1</sup>

Although the STWOA names many specific practices for reshaping school programs and the roles employers play in student learning, we focus on four broad components--three pertaining to student activity, and one to how partnership members interact:

1. ***Career Development.*** The STWOA emphasizes creating and strengthening activities for students that help them learn about the organization of work in society, the range of careers available, their interests and aptitudes, and the paths they can follow to a career.
2. ***School-Based Curriculum Change.*** STW systems are expected to change the courses students take and how they choose them. Schools are encouraged to develop rigorous

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<sup>1</sup>The analysis of STW component availability based on LPS data is subject to inevitable reporting error. Although the LPS includes extensive data, some partnerships could not collect information from all their members; this leads to some underreporting of how many schools or other members have implemented particular STW components or practices. As a result, measures we present on the proportion of schools engaged in each STW activity should be considered lower-bound estimates. On the other hand, our measures of prevalence are also liberally defined, since the activities schools report as available to students are often in reality available to only a few. Estimates of levels of student participation--as distinct from the extent to which schools and partnerships have STW activities available--are presented in Chapter IV.

course sequences organized around broad career areas, to encourage students to plan and prepare for the future. Schools are to integrate curriculum-strengthening academic content and rigor in technical courses, linking instruction in academic skills more closely to their application and making school-based curricula respond to the demands of the world of work.

3. ***Work-Based Learning.*** Partnerships and their members are to develop and expand opportunities for students in work environments--through worksite visits and job shadowing, paid or unpaid work, training, internships, volunteer service, or school-based enterprises--and to connect these experiences to students' school curriculum.
4. ***Connecting Activities.*** The STWOA encourages different types of partners--such as schools and employers or secondary and postsecondary educational institutions--to work together to plan and implement career development, curriculum change, and workplace learning opportunities for students.

## A. CAREER DEVELOPMENT

Helping students to learn about careers and plan for their futures is expected to be a priority for STW systems. The STWOA emphasizes career awareness, exploration, and preparation activities, beginning no later than seventh grade, to help students identify a career interest and organize their studies to achieve that goal. Career development activities can help students make good use of two other STW components: students who have identified even tentative career interests will be better able to choose and benefit from school-based career majors and workplace experiences.

Partnerships use diverse approaches to expand or change traditional counseling and guidance activities and create new career development opportunities for students. The LPS and our analysis focus on seven strategies commonly observed in partnership communities:

- ***Separate Classes for Career Development or Career Awareness.*** Courses that help students understand the range of careers in the U.S. economy, as well as their own interests and aptitudes, through classroom lessons, group activities, and guest speakers
- ***Separate Work Readiness Classes.*** Courses on general employability and specific work-readiness skills, with lessons on workplace behavior and ethics, teamwork exercises, preparation of job applications and resumes, and mock job interviewing

- ***Career Development Activities Integrated into Academic and/or Vocational Classes.*** Brief lessons or projects on available careers and educational/career planning, delivered as part of regular academic or vocational classes
- ***Individual Education Plans.*** Requirements for students to develop (usually in eighth or ninth grade and with help from guidance counselors or teachers) a plan specifying the high school and postsecondary courses relevant to their career goals--and then to update it periodically
- ***Career Interest Inventories.*** Having students complete questionnaires (paper or computer-based) about what they like to do and the attributes of occupations and work environments that appeal to them, which can help students translate their preferences into tentative judgments about careers they might find satisfying
- ***Use of Career Centers.*** Scheduled activities in school career centers, including independent career exploration and research on careers or educational institutions, using computers, special CD-ROMs, Internet connections, and other resources
- ***Workplace Visits and Job Shadowing.*** Field trips to employer worksites and opportunities to “shadow” an employee for a few hours or a day, to learn about particular career areas, industries, and work environments

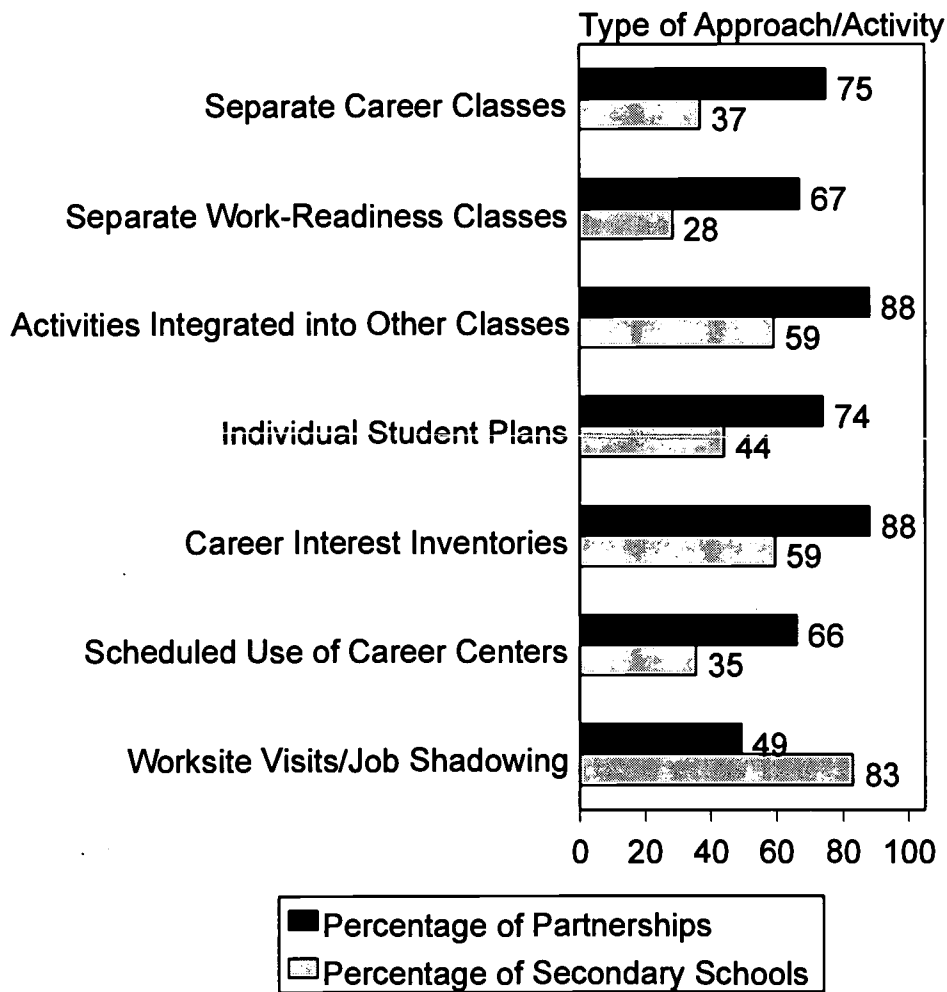
These career development approaches may be used singly or combined to good effect. For example, a common model is for students to complete interest inventories as part of a more extensive career center activity. In many schools, job shadowing opportunities are provided as part of special career development classes or integrated into academic classes such as English or social studies.

This section examines two questions concerning the prevalence of these career development opportunities for students in the 1996-1997 school year, when the LPS was first completed. First, we present findings on the extent to which they are available in partnership secondary schools. Then we examine the degree to which such activities appear to be available through other partnership members--particularly postsecondary institutions and alternative education providers.

## 1. Career Development Is Widely but Not Yet Consistently Available in High Schools

Partnership efforts to enhance students' career awareness and exposure build on a solid base of existing practices. Even in the early stages of implementation efforts in 1996, career development activities were widely available in STW partnerships in the first 27 grantee states (Figure III.1).

**FIGURE III.1**  
**CAREER AWARENESS AND DEVELOPMENT ACTIVITIES IN**  
**SCHOOL YEAR 1996-1997**



SOURCE: STW Local Partnership Survey (LPS), fall 1996, Mathematica Policy Research, Inc.

Two-thirds or more of all partnerships reported that each of the career development activities was available in at least some of their schools and that several of the activities were available in at least half of all partnership schools. Overall, about 73 percent of all partnership schools offered students at least one career development activity in 1996.

This fairly widespread availability reflects in large part progress that states had made even before STW initiatives. Many states had committed to strengthening career awareness and planning as part of education reforms begun in the late 1980s or early 1990s. Some states had developed comprehensive career development frameworks calling for broadly defined activities to be offered at each level of education--elementary, middle, and secondary. In addition, some districts and schools have historically--at least since the 1970s, when "career education" was a popular initiative--offered students ways to learn about careers in school classes.

STW initiatives have heightened the emphasis in many member schools on strengthening career development, making this component a priority in the early stages of STW implementation. Career development is a sensible early focus, because helping students plan for a successful future underlies all STW system goals. Career development activities help students identify a career interest and thus provide a foundation for students' decisions about course options and workplace experiences. The importance of career development as a first step is evident in partnership coordinators' early reports of implementation priorities: among all reporting partnerships, 52 percent said they had given "high" emphasis to improving career guidance practices.

Career development activities are not yet, however, systematically or consistently available. Within partnerships, members adopt varying strategies; as a result, only a small proportion of their schools offer any particular career development activity. For example, about three-quarters of the partnerships offered separate career awareness classes, but only 37 percent of their schools are

known to make these classes available (Figure III.1). Although there is no reason to expect that every school would approach career development in the same way, there are advantages to having some consistency in approach across schools. Most important, if member schools adopted similar activities, then students moving from one community to another could still build, in a coherent sequence, on their earlier career development experiences.

Even within partnerships and within schools, however, making career development activities a coherent sequence for individual students was still a challenge when the first LPS and the early evaluation site visits were conducted. Although many students participate in a variety of career activities (see Chapter IV), linkages between these activities are often weak. Some career development activities are offered only in particular classes, while others are available to all students. Students may complete career interest inventories in ninth grade, but their job shadowing experience the next year may be unrelated to even a tentative interest area identified through the inventory. Making career development activities a progression of successively more focused experiences has been a challenge, in some cases so far unaddressed, in partnerships and schools.

## **2. Other Partnership Members Also Offer Career Development**

The potential benefits of career development activities are clearly not limited to students attending high school. Students of college age are often still uncertain of their career goals or how to attain them or are still refining and focusing their interests. Many postsecondary institutions, particularly community and technical colleges, have historically had career centers and offered career counseling, special workshops or classes, and other services designed to help students plan a path for the future. Youth who have left regular secondary schools and entered alternative education programs are often described by STW practitioners as particularly in need of help charting a sensible

path from their immediate educational pursuits to some longer-term career goal. Career awareness and exposure activities may be particularly important for this group.

Career development activities of some form appear to be available to students in at least a third of the colleges and alternative education programs that are identified as members of local STW partnerships.<sup>2</sup> The 1996 LPS suggests that the most common career development practice--introducing career development units into academic or vocational classes--is followed in at least 35 percent of postsecondary institutions and 37 percent of alternative education providers (Table III.1). Similar, but smaller, proportions of these STW partners make other approaches available, emphasizing about the same types of activities as do high schools.

Career development activities at postsecondary institutions and alternative education providers are, at this stage, likely to be independent of STW partnership initiatives. The LPS is probably capturing information on programs resulting from earlier choices made by these institutions to meet the needs of their students. This observation is based primarily on site visits, which suggest that so far the effect of STW partnership agendas and resources on the internal priorities of postsecondary and alternative education members is quite limited. These members may participate in partnership governance, but beyond that their roles and their STW efforts are usually not prominent. Most have not explicitly modified their programs or strategies to conform to a common partnership agenda or priorities or to create consistency among similar members of the partnership. Many do not view making these changes as a goal of their involvement in STW.

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<sup>2</sup>Partnership coordinators had particular difficulty collecting information from postsecondary institutions and alternative education providers. As shown in Table III.1, only about half of these two types of members provided information for the LPS on career development activities. If the nonreporting members also provide such opportunities for students, the actual availability level may be substantially higher than one-third of the institutions.



TABLE III.1  
CAREER AWARENESS AND DEVELOPMENT ACTIVITIES  
IN COLLEGES AND ALTERNATIVE EDUCATION  
(SCHOOL YEAR 1996-1997)

	Activity Reported as Routinely Available in:			
	Postsecondary Institutions		Alternative Education Providers	
	Total Number	Percentage of Postsecondary Institutions	Total Number	Percentage of Alternative Educational Providers
Total Institutions in Partnerships	2,083	100.0	1,548	100.0
Institutions Reporting on Career Development Activities	955	45.8	790	51.0
Career Development Activities				
Separate career awareness/development classes	572	27.5	494	31.9
Separate work-readiness classes	439	21.1	434	28.0
Activities integrated into academic/vocational classes	730	35.0	574	37.1
Development of individual student plans	n.a.	n.a.	474	30.6
Career interest inventories	564	27.1	538	34.8
Scheduled use of career centers	549	26.4	291	18.8
Worksite visits/job shadowing	NA	NA	347	22.4

SOURCE: STW Local Partnership Survey (LPS), fall 1996, Mathematica Policy Research, Inc.

n.a. = Not applicable.

NA = Not available.

## **B. SCHOOL-BASED LEARNING**

Hopes for achieving STW objectives rest to a large extent on changes in school curriculum. STW proponents see curriculum reforms promoted by the STWOA as ways to engage students more actively in learning, thus fostering stronger skills and improving their preparation for future educational and career paths. Three types of changes are envisioned at the high school level: (1) career majors are expected to engage students in a challenging, coherent sequence of courses relating to a broad career area, exposing them to all aspects of a relevant industry, and typically leading to postsecondary education; (2) curriculum integration, although not clearly defined in the STWOA, is generally understood to mean that schools will bring relevant “real-world” applications and problem solving into academic learning and more academic rigor to vocational education; and (3) partnerships are expected to contribute to the movement toward higher standards. This section examines the prevalence and implications of each of these STW school-based learning features.

### **1. Many Schools Offer Career Majors of Some Type, but Mostly as Small Programs**

The STWOA encourages schools to develop rigorous, career-oriented career majors. These programs of study are expected to provide students with a purpose and focus for their studies, reducing the extent to which students select courses haphazardly and avoid demanding academic classes. As envisioned in the legislation, all students would, no later than 11th grade, identify a broad career interest and a corresponding career major--a “coherent sequence of courses or field of study that prepares a student for a first job.” These programs of study are expected to link academic and occupational instruction and work-based learning and to lead to postsecondary education or training appropriate to the student’s career goals.

The STWOA guidelines allow partnerships and schools wide latitude in how they interpret career majors and pursue their objectives. Observation of implementation practices in the field

suggests that there are three career major models, or ways educators pursue the aims of career majors:<sup>3</sup>

- ***Expression of a Career Interest.*** Many schools ask students to express career interests in an early grade in high school, and counselors may use these interests as a basis for recommending elective courses.
- ***Written Course Sequences as an Available Guidance Resource.*** Some partnerships and schools go a step further, developing course sequence charts or “career pathways” that specify the academic and vocational/technical courses relevant for different broadly defined career clusters. Counselors use these charts as a guide for suggesting courses students might take based on their career interests.
- ***Defined Career-Focused Programs of Study.*** Less often, schools use written sequences as statements of the requirements for defined programs of study. These more structured programs often cluster students with similar career interests in at least some academic classes, to maximize chances for teachers to introduce material related to the career area. Grouping students allows more systematic exposure to all aspects of the career area or industry, sometimes including relevant workplace experiences so students can apply skills learned in class. Career academies and some magnet programs include these features.

In the early stages of STW implementation observed so far, career majors that represent more than modest changes to traditional guidance practices had not been implemented widely.<sup>4</sup> The LPS collects information on the number of partnership high schools that were implementing key features that can be used to distinguish among the three career major models: written course sequences, grouping of students by career area, emphasis on broad exposure to the career or industry, and requirements for related work-based learning. The 1996 LPS data are basically consistent with

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<sup>3</sup>A detailed discussion of these career major models and their implications can be found in the first evaluation report (Hershey et al. 1997).

<sup>4</sup>We did not measure the prevalence of the first form of career majors noted above, largely because it does not reflect the kinds of curriculum organization changes promoted by the STWOA. Historically, it has been widespread practice for high schools to ask students about their career interests. For example, about 43 percent of seniors in the evaluation’s 1996 student survey reported that they had, when asked by school staff, identified a career area to plan for.

findings from 1996 case study site visits with regard to the emphasis partnerships place on career majors, the small scale of efforts so far to implement career majors, and the limited incidence of comprehensive, structured programs of study:

- ***Career Majors Not Yet a Priority in Fall 1996.*** Career majors, a new idea in most schools, require careful definition, training of counselors, and explanation to parents and students. Such efforts have been less emphasized than other STW components: 39 percent of partnerships said that defining and developing career majors was a high priority, compared to 52 percent for improving career guidance and 65 percent for recruiting employers for work-based learning. Various factors detract from the appeal of career majors, chief among them a concern at the state, partnership, and school levels that they would be branded with the stigma attached to vocational education and other career preparation initiatives.<sup>5</sup>
- ***Career Majors Available, but on a Narrow Scale.*** Despite the challenges, many schools make some form of career major available to some degree. In 1996, about 47 percent of partnership schools offered at least one career course sequence students could choose (Figure III.2). The breadth of available career majors is limited, however, no matter how they are defined: in school year 1996-1997, only about 10 percent of seniors had chosen a career major, and most involved Business or Engineering/Industrial Technology.<sup>6</sup> In the early stages of STW development, most schools appear to offer a narrow range of career majors, probably as selective program options for students interested in particular industries or occupations. Career majors in most cases seem to be adaptations of Tech-Prep, career academies, or youth apprenticeships; some partnerships are trying to expand the career areas available and the number of students involved. This finding is consistent with our observation of in-depth study partnerships in eight states.
- ***Clearly Structured Programs of Study Not Widespread.*** Most often (in 41 percent of partnership schools) career majors feature written course sequences used as guidance tools. Most of those schools (34 percent overall) reported that career majors involve clustering at least some students in academic classes by career area--a feature of the more structured form of career majors. Site visits suggest that in many cases these schools probably have a single career academy or youth apprenticeship program. About 13 percent of partnership schools report that *all* their students are clustered by career

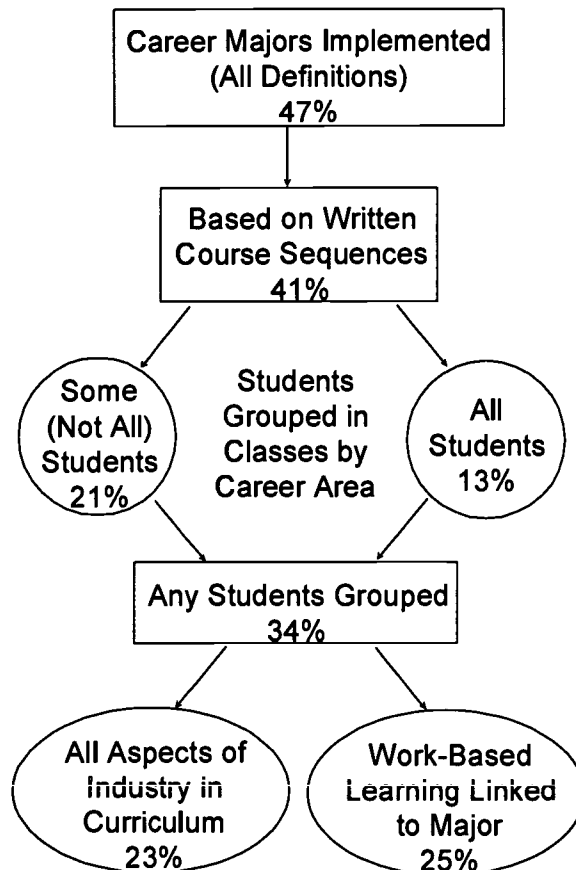
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<sup>5</sup>The full range of factors limiting emphasis on career majors is discussed in the first evaluation report (Hershey et al. 1997).

<sup>6</sup>See Chapter IV for a detailed discussion of student participation in STW activities.

**FIGURE III.2**  
**DEFINITION AND PREVALENCE OF CAREER MAJORS**  
**IN SCHOOL YEAR 1996-1997**

**(Percentage of Partnership Secondary Schools)**



SOURCE: STW Local Partnership Survey (LPS), fall 1996, Mathematica Policy Research, Inc.

major. Site visits suggest that some comprehensive high schools are exploring the idea of schoolwide academies or career clusters, but they still represent a small fraction of schools. LPS data suggest that vocational high schools and area centers account for a high proportion of schools reporting schoolwide clustering of students in career majors.<sup>7</sup>

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<sup>7</sup>Although the LPS data do not allow us to identify the particular schools that exhibit different career major characteristics, multivariate analysis suggests that partnerships with higher proportions of vocational schools are more likely to have higher proportions of schools with schoolwide clustering.

The comprehensive career major envisioned in the STWOA would also involve related work-based learning and instruction on all aspects of the student's target industry, and some schools report they are incorporating these features. Partnership coordinators reported in fall 1996 that about one quarter of partnership schools provided instruction that related to the career major by emphasizing broad exposure to industry issues and career paths. Similarly, a quarter of partnership schools were described as making a related internship or work experience a routine part of students' program of study. The LPS data do not provide a basis for determining how many schools incorporate both of these features in the career majors they offer, but it would be, at most, 25 percent. Since only 15 percent of students participate in a career major of any kind, the proportion of seniors involved in these more ambitious forms of career majors is likely be quite small (see Chapter IV for more detail on student participation in career majors).

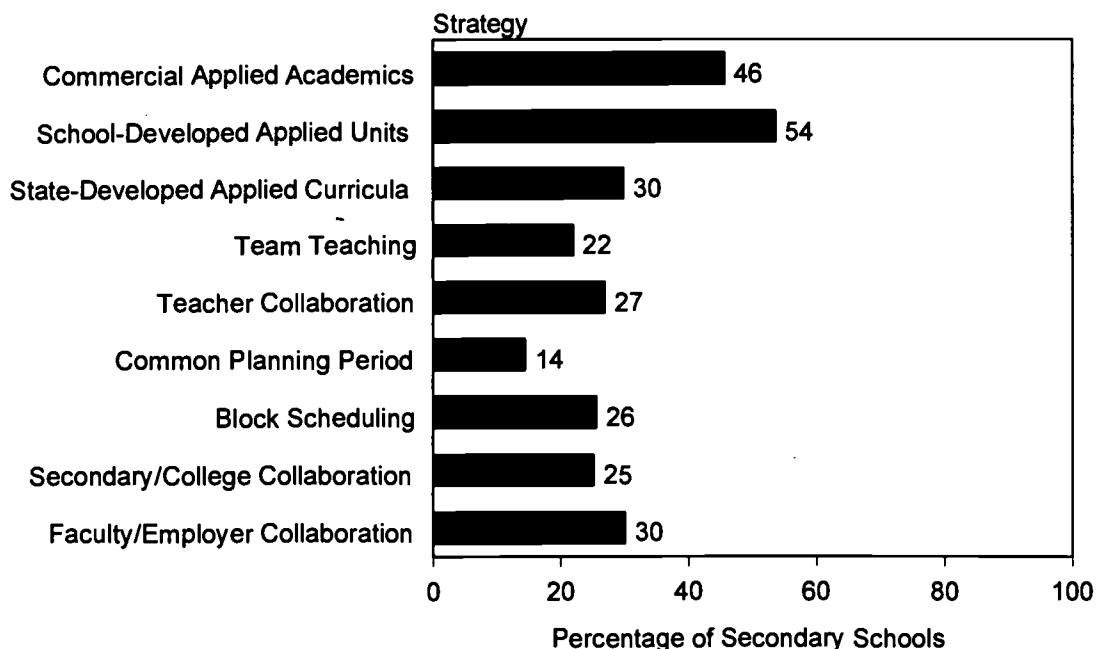
## **2. Efforts at Curriculum Integration Are Widespread, and Strategies Are Diverse**

The career major concept in the STWOA is closely linked to expectations about curriculum integration. Schools are expected not only to promote programs of study that combine selected courses around a career focus, but also to break down the barriers between the academic and vocational classes (and among academic disciplines) that are to be included in a student's career major. These provisions are motivated by research suggesting that applications of theory in academic learning and academic skill development in occupational and work-based learning can engage students' interest and intellect more fully and raise their achievement. The same motives were evident in earlier initiatives that emphasized curriculum integration, including the 1990 Amendments to the Carl D. Perkins Vocational Act and its Title III-E provisions on Tech-Prep. Many STW partnerships are continuing or expanding integration efforts begun under these other initiatives.

One measure of the importance of various forms of curriculum innovation to partnerships is the value they place on professional development. Professional development--usually for school staff--accounts for a substantial share of partnership expenditures; teachers often name it as the major benefit they get from the STW movement and the role of the local partnership. Other than recruiting employers, staff training was the element of STW implementation that received the most attention in school year 1996-1997, according to partnership coordinators. More than 60 percent of partnerships reported giving professional development a "high priority," and another 30 percent gave it "moderate" emphasis.

Partnership schools work at curriculum integration in a variety of ways and often combine strategies to get the most out of them (Figure III.3). Some assist teachers in developing and implementing new curriculum units, encouraging team-teaching, providing common planning

**FIGURE III.3**  
**CURRICULUM INTEGRATION STRATEGIES IN SY 1996-1997**



SOURCE: STW Local Partnership Survey (LPS), fall 1996, Mathematica Policy Research, Inc.

periods for teachers involved in the same career major, and adopting block scheduling to create longer class periods that lend themselves to applied and project-based learning better than conventional 50-minute periods. Integrated or applied curricula are in some cases purchased as packages from commercial vendors and in others developed as applied units by individual teachers or groups of teachers. State agencies have also developed curricula for academic courses that use contextual, applied, or project-based learning approaches.

Integration strategies can complement each other. For example, common planning periods often allow faculty to develop the integrated lesson plans that make team teaching feasible. Schools also use more than one approach, perhaps relying on commercial curricula for some courses or career majors but developing special project-based units for others. LPS data suggest that, on average, schools are employing four of these strategies.

Curriculum innovation efforts of these types mobilize local creativity and consume substantial energy and attention on the part of administrators and faculty. Our visits to the in-depth evaluation sites revealed that curriculum integration strategies like these sometimes become the major focus of STW implementation; in some schools, “having STW” is equated to implementing block scheduling or a few sections of applied math. Some faculty, skeptical of new teaching practices, see the wide array of integration strategies as a tell-tale sign that STW lacks clear focus and is simply another educational fad. Clearer articulation of the unifying objective of integration strategies may be needed to maintain the momentum of these efforts.

### **3. Progress in Raising Standards Has Mixed Implications for STW**

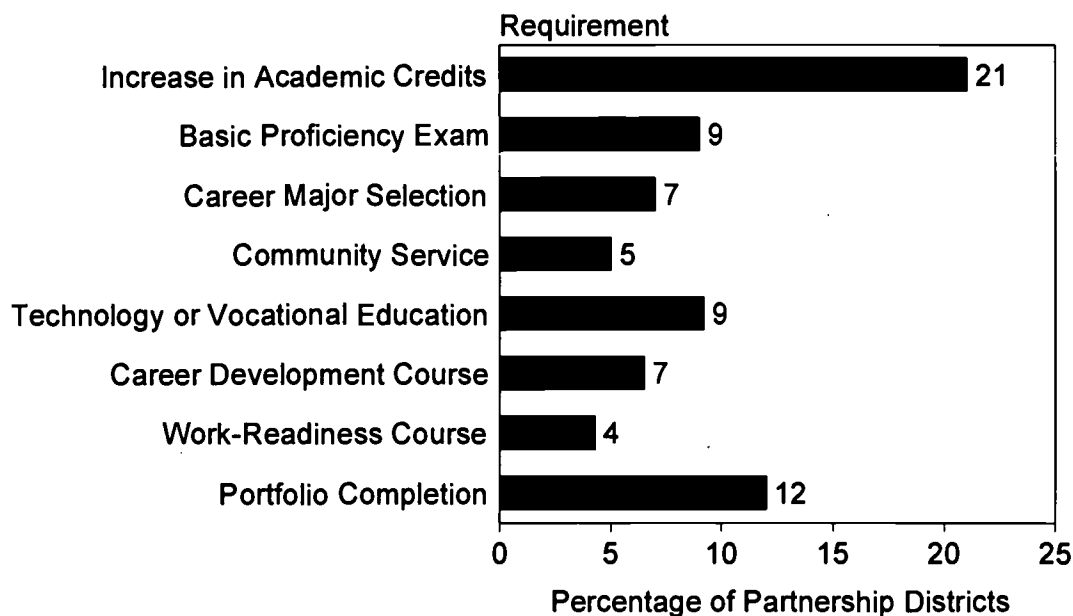
STW system development is intended to be both a motivating force and a source of support in the effort to raise standards for student learning and achievement. States and local partnerships are expected to coordinate development of STW systems with their efforts under the 1994 Goals 2000:



Educate America Act. Such coordination was viewed as essential to ensure that STW initiatives not become peripheral to states' education reforms. Through the LPS, we estimated the incidence, in 1996, of two approaches for moving toward more rigorous standards: (1) the adoption by STW districts of new requirements for high school graduation; and (2) the use of skill certification in accordance with industry-defined standards, usually in vocational programs.

New graduation requirements adopted to any substantial extent since 1994 include three broad types (Figure III.4). Districts have raised academic credit requirements, instituted various forms of

**FIGURE III.4**  
**CHANGES IN GRADUATION REQUIREMENTS SINCE JULY 1994**



SOURCE: STW Local Partnership Survey (LPS), fall 1996, Mathematica Policy Research, Inc.

proficiency testing, and to some extent begun requiring students to fulfill certain requirements related to career preparation.

***Increases in Academic Requirements.*** About one in five partnership districts reported that, since July 1994, they had raised the number of academic credits required for high school graduation. These changes include increasing math or science credit requirements (14 and 11 percent, respectively) or the level of math required (13 percent). Stiffer requirements in English and foreign languages have been introduced in three to four percent of districts. These new requirements could help strengthen academic skills and improve students' preparation for postsecondary education and employment, but they are also described in some schools as crowding out vocational courses and other electives that could provide a basis for career majors or create time for internships.

***Proficiency Testing.*** Many states and school districts are making adequate performance on new academic skills tests a requirement for high school graduation. About nine percent of school districts in STW partnerships reported in fall 1996 that they had adopted such a high-stakes proficiency test since 1994. Particularly where results of such tests are used to hold schools accountable for their performance, pressure is mounting to focus student learning time on subjects the tests address. As a result, we have found in visits to in-depth study sites that some faculty are concerned about using academic class time for career development activities or to allow students to complete internships.

***New Career Planning or Work-Based Graduation Requirements.*** Some school districts are requiring students to complete activities relating to career planning or work-based learning, such as selecting a career major, doing community service, taking technology or vocational education classes or career development or work-readiness courses, and preparing a student portfolio. Such requirements, however, are generally receiving less emphasis than academic requirements; most are so far implemented in only five to nine percent of partnership districts. However, about 12 percent of partnership districts have recently begun requiring students to prepare some kind of portfolio before graduation--as many as have introduced tougher math requirements. These portfolios might

include products of student projects, papers or other work from academic or vocational classes, a resume, and a record of students' evolving educational and career plans.

The use of formal skill certificates attesting to students' attainment of competencies defined by industry groups was not yet widespread in 1996. Only about 13 percent of all secondary schools were reported to have begun awarding some such certificates. Within schools, use of skill certificates usually appears restricted to a narrow range of programs and to affect few students. Schools that could account for award of such certificates in 1996 reported a total number of recipients amounting to 2.4 percent of all seniors. Schools that gave certificates in business-related fields or in engineering and industrial technology fields awarded certificates to an average of about 17 students. In other career areas such as health, human services, arts and communications, and agriculture and natural resources, schools typically awarded certificates to just two to seven students.

### **C. WORK-BASED LEARNING**

Work-based learning is a central component of the opportunities for students envisioned under the STWOA. Mostly in employer workplaces, but also in certain school-based activities, work-based learning is seen as a way for students to learn about careers, gain useful skills for the future, apply and enhance skills they learn in school, and recognize the importance of education to future career success. The STWOA calls on partnerships to develop job shadowing, internships and work experience opportunities, training and apprenticeships, and school-based student enterprises. The legislation particularly emphasizes the benefits of more extensive, and preferably paid, programs of training and work experience linked to school-based career majors, with instruction on all aspects of the industry or broad career area students have selected.

The survey of local partnerships provides a basis for describing the availability of work-based learning in school year 1995-1996. These measures, taken relatively early in most partnerships'

implementation efforts, will be the starting point for charting growth in work-based learning availability using later rounds of the partnership survey. Three categories of work-based learning were examined: (1) opportunities at employer workplaces for students in regular comprehensive or vocational high schools that are members of STW partnerships, (2) work-based learning opportunities in student enterprises sponsored by those schools, and (3) opportunities at employer worksites in programs run by alternative education providers for youth who had dropped out of or transferred from regular high schools.

### **1. Workplace Opportunities Are Usually Low-Intensity and Most Common in Urban Areas**

Arranging workplace opportunities for students is a major focus of efforts by partnership and school staff leading STW implementation. More than 65 percent of STW partnership coordinators reported in fall 1996 that they placed high priority on recruiting employers to provide workplace experiences, ranking it higher than any other aspect of STW implementation. In part, this emphasis reflects the value placed on workplace learning in the STWOA. It also, however, reflects the fact that, in many communities, existing programs offering workplace opportunities provided ready starting points for expansion. Expanding workplace learning can follow a more familiar pattern for schools than, for example, the path they must follow to define and implement career majors.

Low-intensity, exploratory workplace activities have so far been more common than extensive workplace learning linked to career majors. Overall, 58 percent of all partnership schools make some form of workplace experience available for students. Short-duration, unpaid experiences, usually unrelated to a students' career major, are most common, because they are generally easier to arrange and require less commitment from employers, students, and teachers (who often have to release students from class time (Table III.2). For example, community service, worksite visits, and job shadowing are available in between 29 and 49 percent of partnership schools. More intensive

TABLE III.2

AVAILABILITY OF WORKPLACE ACTIVITY IN SCHOOL YEAR 1995-1996  
(For Partnerships in Rural, Suburban, and Urban Areas)

Type of Workplace Activity	All Partnerships			Rural Partnerships			Suburban Partnerships			Urban Partnerships		
	Percentage of Secondary Schools	Average Number of Students per School Reporting Counts		Percentage of Secondary Schools	Average Number of Students per School Reporting Counts		Percentage of Secondary Schools	Average Number of Students per School Reporting Counts		Percentage of Secondary Schools	Average Number of Students per School Reporting Counts	
Any Workplace Activity	58.1			56.8			58.0			61.7		
Related to Career Major												
Paid jobs during school year	28.4	25.2		25.4	20.1		28.8	25.2		34.4	40.3	
Unpaid internships/jobs during school year	24.5	18.2		22.5	8.8		24.5	24.7		29.4	22.1	
Paid summer jobs	18.5	8.2		17.3	6.9		16.6	6.1		28.4	20.2	
Unpaid summer internships/jobs	6.9	0.8		5.9	0.4		5.4	0.8		14.9	1.8	
Not Necessarily Related to Career Major												
Worksite visits/job shadowing	48.8	74.0		47.8	58.6		49.7	87.5		48.2	69.7	
Community service/volunteer work	29.2	39.0		23.5	28.3		30.9	42.2		36.8	58.8	
Workplace experience not related to career major	23.7	24.6		23.4	20.0		22.1	24.2		30.5	39.6	
Workplace mentor	18.1	18.7		14.4	4.6		17.5	31.9		28.9	11.6	

SOURCE: STW Local Partnership Survey (LPS), fall 1996, Mathematica Policy Research, Inc.

NOTE: Secondary schools include comprehensive high schools, vocational high schools, and regional vocational centers serving secondary students. Postsecondary institutions include two-year and four-year institutions of higher education.

activities linked to career majors, such as summer or school-year paid jobs, are available in 19 to 29 percent of schools. In school year 1995-1996, low-intensity worksite activities clearly involved more students as well; at schools that reported participant counts, an average of 74 students participated in worksite visits and job shadowing, compared to 25 in paid after-school jobs related to their career major.

At least in the early stages of STW implementation, workplace activities are most available in urban schools, particularly for the more intensive forms of workplace activity (Table III.2). The rates at which workplace activities related to career majors are available in urban schools exceed the rates of availability in rural and suburban schools by at least 20 percent and as much as 175 percent.<sup>8</sup> The greater availability of these opportunities in schools in urban partnerships is probably a reflection of several factors: (1) the presence and accessibility of employers in urban areas; (2) a stronger history of collaboration between individual schools and employers; and (3) the availability of public transportation, lack of which is a major obstacle to implementing workplace activities in other communities.

## **2. School Enterprises, Widely Available, Are a Partial Alternative to Workplace Learning**

School-based enterprises (SBEs) are a common way to introduce students to the norms of the workplace without major logistical difficulties. Usually conducted on campus, these enterprises are operated by students to produce goods and services and market them to the school community and sometimes the general public. Among the most common SBEs are school stores or banks run by

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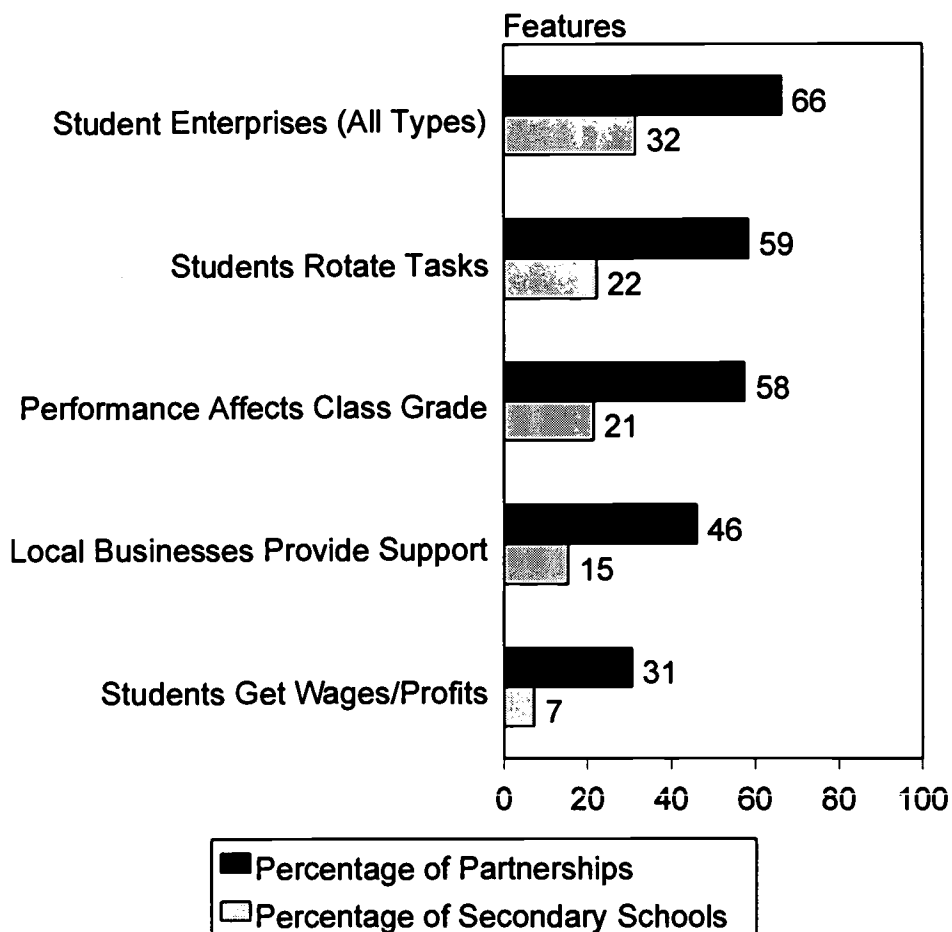
<sup>8</sup>For example, the availability of paid school-year jobs in urban areas (34.4 percent of schools) is 35 percent higher than the comparable rate for rural schools (25.4 percent). The availability rate for unpaid summer internships related to career majors in urban schools (14.9 percent) is 175 percent higher than in suburban schools (5.4 percent). These differences in availability do not translate into similar differences in student participation rates, as will be discussed in Chapter IV.

students in business or marketing classes, bakeries and restaurants operated by culinary arts programs, and garden nurseries run by students in horticulture or agricultural science programs. Many schools have moved beyond these traditional SBEs and now sponsor new student businesses such as graphics design and production and web site development (observed in STW partnership schools). School-based enterprises have the advantage of being easier to arrange, monitor, and link to school curriculum than activities at an employer worksite. SBEs remain the exception rather than the rule, however: only about one-third of secondary schools made some kind of SBE available to students in 1995-1996 (Figure III.5). Rural partnerships are somewhat less likely to have SBEs (60 percent of partnerships versus 72 percent of both urban and suburban partnerships), even though this form of work-based learning is often presumed to substitute for workplace learning where employer partners are scarce.

The extent to which SBEs give students what the STWOA anticipated they would gain from workplace activities varies, however. We examined three dimensions of variation in the features of SBEs that could affect how well they substitute for workplace activities: the variety of tasks students undertake, the connection to their school program, and the degree of involvement with employers.

- **Task Rotation.** Without the same competitive production and scheduling pressures of a business in the open market, SBEs can afford to give students greater exposure to the varied responsibilities within an enterprise than can part-time jobs or even internships. Some SBEs consciously orient students to multiple aspects of business operations, including financial, management, marketing, and production tasks. In 22 percent of partnership schools (70 percent of schools with SBEs), students in at least some enterprise reportedly experience all aspects of the operation by rotating among tasks and responsibilities.

**FIGURE III.5**  
**STUDENT ENTERPRISES: CHARACTERISTICS AND**  
**PREVALENCE IN SCHOOL YEAR 1995-1996**



SOURCE: STW Local Partnership Survey (LPS), fall 1996, Mathematica Policy Research, Inc.

- Link Between Performance and Grades.*** Work-based learning is widely viewed as a way to help students see the importance of what they learn in school for future success in the labor market. As discussed in Chapter IV, however, few jobs and other workplace activities in which students are involved have links between school and work. In contrast, 70 percent of the schools that offer SBEs report that students' contribution to and performance in the enterprise affect their course grade. SBEs that have this characteristic are available to some extent in 21 percent of all partnership schools.



- ***Real Business Exposure.*** One disadvantage of SBEs relative to workplace activities is that they provide fewer opportunities for students to interact with real business people--to hear or see actual employer concerns, expectations, and experiences. Most student enterprises are run without local business support. Businesses sponsor, guide, or participate to some extent in SBE activities in about 15 percent of all partnership schools, or less than half of all schools that offer these ventures.

### **3. Alternative Education Providers Focus Less than Do Schools on Work-Based Learning**

Some proponents suggest that work-based learning can be an effective strategy for students who have left the traditional educational path through high school. These experiences could provide at-risk or out-of-school youth with important adult role models and mentors, build students' self-esteem and expectations for the future through increasing job responsibility and positive feedback, and help them develop employability skills they will need for success in the labor market. Some practitioners consider workplace activities a way to motivate low-achieving students to strive for higher levels of educational performance--for example, by requiring students to maintain a specified grade point average to keep their internships or part-time employment.

Despite these potential benefits, work-based learning so far seems less emphasized in alternative education than in regular high schools, and less than other STW elements. About two-thirds of all partnerships report having alternative education providers as members, and, where workplace activities are available from such providers, the balance between less and more intensive activities was similar to that found in comprehensive and vocational high schools (Table III.3). However, only about half of these partnerships (31 percent overall) reported that any of these alternative education providers actually offered workplace activities. Overall, 34 percent of all alternative education providers in STW partnerships reportedly made workplace activities available in school year 1995-1996. All types of workplace activity are less likely to be offered in alternative education programs

TABLE III.3

WORKPLACE ACTIVITY ARRANGED BY ALTERNATIVE EDUCATION PROVIDERS:  
AVAILABILITY AND PARTICIPATION IN SCHOOL YEAR 1995-1996

Workplace Activity	Percent Where Available		Number of Students Participated	
	Partnerships	Alternative Education Providers	Total Number	Average Number per Provider Reporting Counts of Students Participating
Any Workplace Activity	30.7	33.7		
Related to Chosen Career Major				
Paid jobs during school year	16.4	13.4	3,536	9.8
Unpaid internships/jobs during school year	15.5	12.1	3,762	10.5
Paid summer jobs	12.3	9.9	2,822	7.9
Unpaid summer internships/jobs	5.6	4.6	370	1.0
Not Necessarily Related to Chosen Career Major				
Worksite visits/job shadowing	25.7	22.4	8,164	22.7
Community service/volunteer work	20.0	16.6	5,576	15.5
Workplace experience not related to career major	17.5	15.7	6,975	19.4
Assignment to a workplace mentor	12.2	9.8	2,666	7.4

SOURCE: STW Local Partnership Survey (LPS), fall 1996, Mathematica Policy Research, Inc.

than in regular high schools.<sup>9</sup> In contrast, some forms of career development activities are available in alternative education settings at rates approaching those found in regular secondary schools.

Although reporting problems could account for some of the apparent differences in availability of workplace activity, the LPS data still suggest that alternative education providers focus more on other educational goals and activities. Our site visits indicate that there are often weak linkages between alternative education providers and other partnership members, and in some places this factor may have made it difficult for partnership coordinators to obtain information from these members. However, partnerships were able to collect data on at least some aspects of STW implementation (such as career development strategies) from more than half their members who were alternative education providers. Thus, it seems likely that many organizations that serve at-risk and out-of-school youth simply do not arrange for students to participate in worksite activities. Many probably place higher priority on helping students acquire the basic academic competencies they need as a foundation for work and further education, particularly providers helping students pass the General Educational Development (GED) test.

#### **D. LINKING THE EFFORTS OF STW PARTNERS**

Although some aspects of STW system building can be addressed by schools on their own, linkages between schools and other partners are clearly essential to some STW goals. Efforts to promote students' transitions from high school to postsecondary education or training programs can be strengthened by close cooperation between local school districts and postsecondary institutions.

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<sup>9</sup>For example, over 28 percent of partnership secondary schools offer paid school-year jobs related to career majors, and over 24 percent offer internships related to career majors. Just 13 percent of alternative education providers such offer paid school-year jobs, and 12 percent offer internships.

Efforts to get students into employer workplaces and to ensure that school curricula reflect emerging workplace demands obviously call for collaboration between schools and employers.

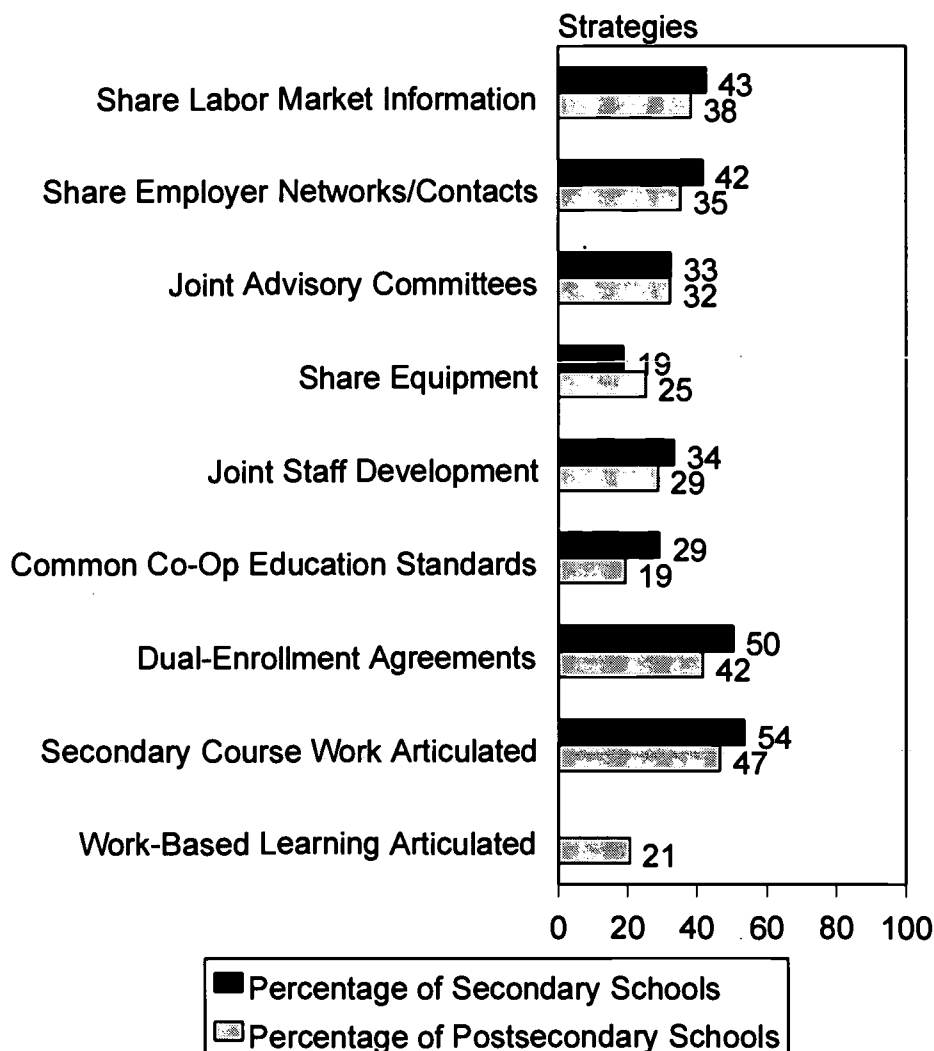
Such linkages predate the STWOA, but their enhancement and durability even when federal partnership funding ceases will be an important determinant of the long-term success of STW systems. Preexisting “Employer Adopt-a-School” programs in many communities, for example, are being transformed from simple vehicles for employer donations of equipment and materials to more sustained involvement of employer staff with school faculty and students; the question is whether these deeper forms of collaboration can continue over the long term. We examined two sets of relationships using the LPS data, to establish a benchmark against which to measure evolution of linkages: (1) connections between secondary and postsecondary institutions, and (2) relationships between secondary schools and employers.

### **1. Schools and Colleges Are Linked by Articulation but Also by Partnership Interactions**

Encouraging secondary and postsecondary institutions to work closely together is often viewed as one way to increase the number of students who enter higher education. Public schools have long communicated with postsecondary institutions, to acquire the information they need to advise their high school students on college entrance criteria, program offerings, and sources of financial aid. The STWOA, without specifying particular strategies, encourages arrangements that go beyond those traditional connections. The LPS asked about 10 possible types of linkages, identified from field observations and state and local plans for this aspect of partnership implementation. These linkages include some that could bring secondary and postsecondary faculty together on an ongoing basis, as well as some institutional arrangements that can directly affect students’ school curriculum and workplace experiences.

**Interaction Between Secondary and Postsecondary Staff.** Regular and ongoing opportunities to share information, ideas, and equipment and facilities could reduce professional isolation of high school and college faculty, strengthen curricula, and promote efficient use of institutions' resources. Even in 1996, such interactions that bring together faculty, administrators, and counselors from secondary and postsecondary institutions were already quite common, although certainly not universal (Figure III.6). For example, 43 percent of partnership schools shared labor market

**FIGURE III.6**  
**SECONDARY-POSTSECONDARY LINKAGES IN**  
**SCHOOL YEAR 1996-1997**



SOURCE: STW Local Partnership Survey (LPS), fall 1996, Mathematica Policy Research, Inc.

information--such as projections on occupations in growing demand--with 38 percent of all partnership postsecondary institutions.<sup>10</sup> Similar proportions of secondary and postsecondary schools were already sharing information about employer contacts and networks, perhaps as a way of expanding and coordinating work-based learning opportunities across institutions. Faculty from a third of partnership secondary schools and almost 30 percent of member colleges have participated together in staff development activities. There is thus already some level of interaction between schools and colleges, although the frequency or intensity of such meetings and exchanges of information cannot be determined from the survey information.

The frequency of these interactions between institutions in the early stages of STW development reflects two factors. First, some initiatives prior to the passage of the STWOA and some collaborations other than local STW partnerships have promoted such efforts. Some communities have long had advisory committees for vocational education programs that cover instruction at both the secondary and postsecondary levels. Workforce development boards, regional economic development groups, and Department of Labor Service Delivery Area agencies have often been a focal point for educators at both levels, particularly those that oversee occupational programs, to learn about labor market and employer needs.

Second, partnerships have themselves emphasized bringing members together. They have convened governing boards, special committees, staff development workshops, and externships, all of which bring individuals from both levels of education together. Thus, as federal funding for partnership activity subsides, some secondary-postsecondary linking activities may also diminish. Alternatively, individual schools and postsecondary institutions may choose to develop bilateral

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<sup>10</sup>Postsecondary institutions include both two-year and four-year institutions of higher education.

arrangements or rely on other collaboratives (for example, workforce development boards or Tech-Prep consortia) to provide continuing opportunities for these exchanges.

**Policies for Earning School-Based or Work-Based Learning Credits.** The most traditional and common secondary-postsecondary linkages are those that provide opportunities for high school students to earn college credit. These connections can promote transitions to college, minimize redundant course work, and reduce the cost of earning a college degree. Some linkages are already widespread (Figure III.6). Articulation agreements, largely the result of Tech-Prep implementation and earlier initiatives, involve about half the secondary schools and half the postsecondary institutions in STW partnerships. These articulation agreements grant either college credit or advanced standing to students who complete high school courses that include content and competencies similar to those of introductory college courses. Dual-enrollment policies, which allow high school students to take college courses for both college and high school credit, were in 1996 almost as widely available as articulation agreements. Policies that either promote consistency in standards across levels or award college credit for structured work experience were less prevalent.

Earlier research and on-site observation suggest that these policies are unlikely to significantly influence postsecondary enrollment for large numbers of students, however. Few students take advantage of articulation agreements, either because they are unaware of the possibility of earning college credit or because they choose to attend institutions at which the agreements are not valid. Dual enrollment serves the few students who exhaust their high school's course offering in a subject area. At least so far, small numbers of students nationwide engage in cooperative education work experience or other workplace activities of sufficient duration and educational intensity to merit the awarding of college credit.

## **2. Employer Engagement with Schools Is Very Widespread**

Employers are expected to take active roles in STW system building and, in the process, to work closely with schools. They are clearly expected to play a major part in creating workplace learning opportunities for students. Beyond opening their doors to students, however, employers are expected to get involved in defining new approaches to school curriculum, to provide resources, and to help strengthen ties between STW and broader workforce development strategies. Of course, the idea of partnerships between schools and businesses long preceded the STWOA. However, the legislation and its funding are expected to help stimulate, broaden, and institutionalize employer collaboration with educators.

Even in fall 1996, employers were clearly providing various forms of support to a large fraction of American high schools (Table III.4).<sup>11</sup> Almost all partnerships (93 percent) reported at least some form of support from employers who either worked with staff or provided some kind of material resources in at least some partnership schools. More than three-quarters of the partnerships reported at least four different types of employer support.

Individual schools collaborate with employers in different ways and to different degrees. At least in school year 1995-1996, some probably did not have the benefit of any support from the private sector. This is certainly true for specific types of employer involvement; for example, although in 88 percent of partnerships employers released staff in 1996 to speak in classrooms or participate in career days, they did so in only 53 percent of member schools. Certainly, some portion

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<sup>11</sup>The partnership survey also inquired about whether labor unions were playing any of the roles listed in Table III.4 or providing other forms of support. Labor unions were far less visible as active partners than employers; in schools where particular forms of support from employers or unions were reported, the number of involved labor organizations was generally about two to three percent of the number of employers working with the schools. In one category--sponsoring student awards--unions appeared somewhat more active; the number of unions offering this kind of support equaled almost 10 percent of the number of employers offering student achievement awards.



TABLE III.4

## BUSINESS AND INDUSTRY SUPPORT PROVIDED TO SCHOOLS IN SCHOOL YEAR 1995-1996

	Percentage Received Support		Number of Employers Provided Support	
	Partnerships	Secondary Schools	Total	Average per School Reporting Counts of Supporting Employers
<b>Working with School Staff</b>				
Curriculum Development	65.8	30.7	19,038	4.7
Promotion/Marketing STW	78.6	38.6	24,841	6.2
Training/Internships for School Staff	76.9	40.9	16,175	4.0
Guest Speaking at Schools	88.0	53.2	49,025	12.2
<b>Providing Material Resources</b>				
Provide Equipment	70.0	29.0	7,551	1.9
Lend Office Space	53.1	20.8	7,260	1.8
Provide Student Awards	67.5	30.0	9,159	2.3
Provide Teacher Stipends	33.1	11.3	1,702	0.4

SOURCE: STW Local Partnership Survey (LPS), fall 1996, Mathematica Policy Research, Inc.

of the remaining 47 percent of partnership schools probably received another type of assistance from business and industry; the LPS data do not allow us to measure the involvement of individual schools in multiple types of employer collaboration. However, site visit information suggests that some schools, particularly those with a strong tradition of sending most seniors on to competitive colleges, have not reached out to involve employers with as much enthusiasm as other schools.

#### IV. THE SCALE AND DIVERSITY OF STUDENT PARTICIPATION

Creating a STW system involves not only making certain activities available to students, but actually engaging a broad, diverse population of students in these activities. The STWOA provides that all students should have “access” to STW activities, but it also stresses helping “all students attain high academic and occupational standards.” Neither the legislation nor STW practitioners suggest that a standard set of activities should be prescribed for every student. However, the legislation does suggest that partnerships should develop a mix of specific programs and activities designed collectively to affect the entire student population.

An important long-term issue is thus the extent to which STW activities engage a large and diverse population of students. Analysis in this report should still be seen as an early “baseline” reading, because it draws on data from early in the implementation of STW. The main findings are:

##### ***Main Findings About Student Participation***

- ***Early in STW implementation, students were widely engaged in career development activities but less so in other STW components.*** About 63 percent of 1996 seniors in the eight in-depth study states had a range of career development activities. About 12 percent perceived a career focus for their studies, and 16 percent had any workplace experience that was linked to their school program.
- ***While STW activities involved a diverse mix of students, some groups had higher participation rates.*** Higher-achieving students, however, were more likely to describe a career goal around which their studies are organized. Work-based learning linked to the school curriculum engaged more females than males. Urban schools lagged somewhat behind suburban and rural schools in the degree to which their students engaged in career development activities and had a career focus for their studies.

Our field research suggests that the emphasis in the STWOA on helping all students is important to many STW practitioners, for two reasons. First, many advocates for STW systems are convinced that at least some activities promoted by the legislation can benefit all students regardless of their aspirations or academic abilities. Second, many educators are interested in overcoming the stigma often attached to certain career-focused activities like vocational programs. By attracting a broad cross-section of students to STW activities, they hope to enhance the actual and perceived quality of these activities and help more students prepare for careers.

The experiences of the high school class of 1996 in the eight in-depth evaluation states provide an early snapshot of how many students and which students were involved in the kinds of activities promoted by the STWOA as implementation efforts were getting under way. Most partnerships are building on and enhancing preexisting vocational and Tech-Prep programs, co-op work experience programs, community service and internship programs, and efforts to infuse career-related themes into the curriculum. As partnerships and their members expand such programs, develop new opportunities for students, and link them more effectively, student participation is likely to change.<sup>1</sup>

After describing our data sources and analytic approach in Section A, this chapter focuses on two issues. Section B summarizes early findings on the scale of student participation in the three major STW components: (1) career development activities; (2) workplace activities linked to school; and (3) a school-based program with some career focus, roughly comparable to a career major as defined in the STWOA. For this presentation, we draw on student survey findings already discussed

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<sup>1</sup>This cohort's high school experience was not substantially affected by STW grants because these students completed high school before partnerships had much time to implement their initiatives. In later reports, we will be able to compare the high school experience of the class of 1996 with experiences of the classes of 1998 and 2000 to assess whether partnerships succeed in expanding the number and diversity of students involved in STW activities.

in the first evaluation report.<sup>2</sup> Section C examines which 1996 seniors had been involved in activities promoted by the STWOA, differentiating among subgroups defined by academic achievement levels, background, and urbanicity. This section also identifies possible causes and implications of differences in participation rates. In Chapter V, we examine which segments of the student population are most likely to be involved in all three STW components.

#### **A. DATA SOURCES AND ANALYSIS APPROACH**

In collecting and analyzing data on student participation, we have defined STW activities broadly. We include activities that students may have found through a program connected to their school, as well as those they may have found on their own or through contacts unrelated to school. Activities that are part of a school-related program may have been created through efforts of the STW partnership or by preexisting initiatives.

We take this broad perspective because our interest is not only in programs STW partnerships create, but also in the overall extent to which students are taking advantage of the kinds of opportunities the STWOA encourages. This broad perspective makes sense for several reasons. First, STW partnerships often attempt to tap activities that students engage in on their own (for example, by getting students to draw on their own workplace activity as a career development experience). Second, there is little reason to distinguish between new programs specifically initiated and funded by the STW partnerships from other preexisting opportunities for students; they can contribute equally to the overall array of options for students. Most partnerships sensibly provide both direct and indirect support to many preexisting activities, blurring the distinction between programs that are the result of partnership implementation efforts and those that are not.

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<sup>2</sup>See Hershey et al. 1997.

We measure participation primarily from the perspective of the students themselves. A sample of 2,739 students in the class of 1996 was surveyed in the spring of their senior year.<sup>3</sup> The sample was drawn randomly to represent all seniors in high schools that were part of STW partnerships in the eight in-depth study states.<sup>4</sup> The survey elicited students' perceptions of their experiences, in grades 9-12, in a variety of career development, school-based, and workplace activities. The survey itself collected some background characteristics of the students, but information was also drawn from their final high school transcripts, including data on attendance, grade point average, and courses taken.<sup>5</sup> (This chapter's analysis of participation relies chiefly on ninth-grade measures of attendance and grades, because these reflect school performance of students before they participated in most STW activities.)<sup>6</sup> Appendix B describes the composition of our sample, combining measures from the survey and transcripts.

Since we rely principally on the student survey and transcripts, most of our conclusions apply to the eight in-depth study states. However, for several participation rates we compare estimates from the student survey with estimates of student participation derived from the local partnership

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<sup>3</sup>An 80 percent completion rate was achieved; 2,203 students completed the survey questionnaire.

<sup>4</sup>The states are Florida, Kentucky, Maryland, Massachusetts, Michigan, Ohio, Oregon, and Wisconsin. In the first stage of sampling, 69 schools were randomly selected with probability of selection proportional to the size of their 12th-grade population. Then students were randomly sampled in equal numbers from each school.

<sup>5</sup>Student characteristics available from the survey included racial/ethnic identity, disability status, native language, household composition, parents' education level, disciplinary incidents in school, membership in the honor roll, and family receipt of welfare. Although these variables were all used in preliminary analysis, attention is focused primarily here on those that emerged as correlated with participation.

<sup>6</sup>For some analyses, we also used measures from the 12th-grade cumulative record, such as final Grade Point Average (GPA).

survey, which included all substate partnerships in the 27 states and federal direct grantees. We found no major discrepancies between the estimates derived from the two data sources.

Survey questions were used, singly and in combination, to construct measures of students' involvement in the three main STW components emphasized in the STWOA (Table IV.1). Students were considered to have engaged in a comprehensive career development component if they reported having taken part in four out of five specific activities that many schools and partnerships offer to help students learn about careers and formulate career goals. They are considered to have participated in a work-based activity if, at any point in high school, (1) they drew upon a paid or unpaid workplace experience for a class assignment, and (2) their performance in that work experience counted toward a grade at school. These work-based activities are referred to as "linked" because they have at least some connection to school activities.

For participation in the school-based "career major" highlighted in the STWOA, we adopted a relatively liberal measure of whether students had a career focus in their studies. Students were considered to have had a career focus in high school if they identified a career interest in response to a query from school staff and reported having taken at least one academic class designed for students with the same "career major or area." This measure is fairly expansive in that it could be satisfied if students took just one academic course with a connection to their expressed career interests. To distinguish the career major--envisioned in the STWOA as "integrating academic and occupational learning"--from traditional vocational education programs, we did not consider students to have participated in a career major if the only career-focused course they had taken was a vocational course or sequence.

The analysis of student participation included both bivariate and multivariate statistical techniques. Bivariate statistics are used to determine whether there is a statistically significant

TABLE IV.1  
SCHOOL-TO-WORK COMPONENTS AS DEFINED  
IN 12TH-GRADE STUDENT SURVEY

Component	Definition
Comprehensive Career Development	<p>The student participated in four of five activities at some time during high school:</p> <ul style="list-style-type: none"> <li>• Talking to a teacher or counselor about career plans</li> <li>• Completing a career interest inventory</li> <li>• Attending employer presentations at school</li> <li>• Participating in a work-readiness class</li> <li>• Going on a worksite tour or job shadowing experience</li> </ul>
Work-Based Learning Activities	<ul style="list-style-type: none"> <li>• At some time during high school, the student had a paid or unpaid job, internship, or training experience, either independently or through school.</li> <li>• The student used something learned at that worksite experience in an essay, classroom presentation, or some other school assignment.</li> <li>• The student's performance at that worksite counted toward a grade at school.</li> </ul>
Career Majors	<ul style="list-style-type: none"> <li>• During high school, the student selected "a career major or career area to plan for."</li> <li>• The student took a math, science, or English class "specifically designed" for students interested in that career area.</li> <li>• The student had at least one assignment in such a class relating to the chosen career area.</li> </ul>



difference between the participation rates of particular subgroups of students. Multivariate models were used to estimate the probability that a student in a particular group (for example, female students) participated in a STW activity, holding constant other characteristics such as academic achievement and parent's education. The results from the bivariate and multivariate are quite similar; we therefore focus discussion in this chapter on the simpler bivariate findings and present details of the multivariate estimates in Appendix C.

## **B. SCALE OF STUDENT PARTICIPATION**

Participation in the three main STW activities promoted by the STWOA has already been reported for the 1996 cohort of high school seniors.<sup>7</sup> The main findings concerning the scale of participation were as follows:

- Most students (63 percent) participated in a comprehensive set of career development activities.
- Although nearly half of all students had at some point identified a career area to plan for during high school, only 12 percent also recalled taking any academic courses for students with their career interest.
- Few students (16 percent) had work experiences that were connected to their program of study.

### **1. Most Students Participate in Career Development Activities**

Career development is a prerequisite for most other career-focused activities. Students can benefit from opportunities to learn about careers, whether or not they ultimately have a high school program of study organized around a particular set of occupations. Activities such as career interest

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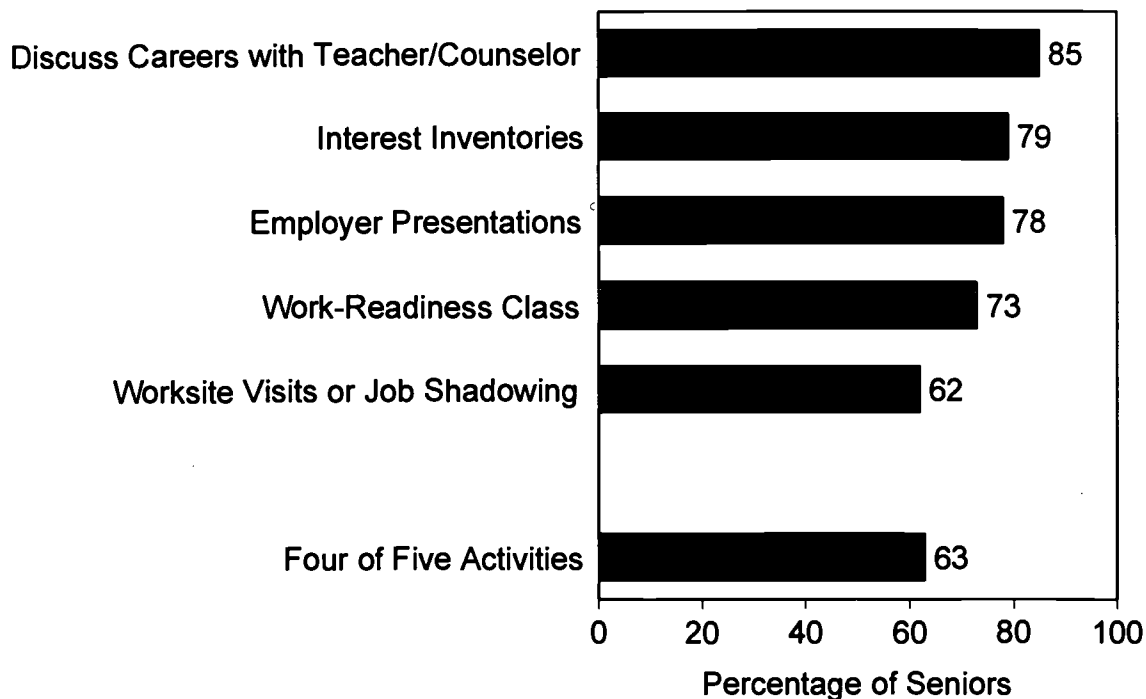
<sup>7</sup> For a detailed presentation on the scale of student participation for 1996 seniors in the eight in-depth study states, see Hershey et al. 1997.

inventories and career counseling are a low-cost mechanism for students to clarify their interests and can help students choose more intensive activities like internships.

Career development activities already involved students on a large scale when STW implementation was in its early stages (Figure IV.1). About 85 percent of the class of 1996 had discussed their career plans with teachers or guidance counselors at some point during high school, and about 79 percent had completed a career interest inventory. Comparable rates were found for attendance at employer presentations and work-readiness classes and workshops, and somewhat lower rates for involvement in workplace visits and job shadowing. Almost two-thirds of all students (about 63 percent) had participated in at least four of the five career development activities.

The early evaluation site visits in the eight in-depth study states showed, however, that high rates of participation in a variety of career development activities do not mean those activities were

**FIGURE IV.1**  
**PARTICIPATION IN CAREER DEVELOPMENT ACTIVITIES**  
**GRADES 9-12**



SOURCE: STW survey of 12th graders in the class of 1996, Mathematica Policy Research, Inc.

carefully sequenced. For various reasons, students sometimes participate in job shadowing that has little relation to their career interests, and career development activities are not always structured to help students select or plan a program of study during high school. For example, in some sites, we noted that teachers sometimes ask eighth graders to complete an “Individual Career Plan” without helping them consider which high school courses are most appropriate for their career interests.

## **2. Few Students Perceive Their Studies as Organized Around a Career Goal**

A small fraction of 1996 high school seniors in the eight in-depth study states had, by even a liberal measure, engaged in what might be considered a career major as called for in the STWOA. Over half (52 percent) were asked by school staff “to select a career major or career area to plan for,” and four-fifths of them (43 percent of all students) did so. However, only about 12 percent of all students reported having taken any academic classes designed for students with their specific career interests and having done assignments related to their career interest.<sup>8</sup> This is our best available measure of the extent to which students in the class of 1996 saw themselves as engaged in a program of study geared toward students with particular career interests.

The academic component of what students perceive as a career-focused program typically focuses most on math and science and extends over several years (Table IV.2). Students who took classes they perceived as designed for their career interests typically took them for at least two years. Math and science classes accounted for about 80 percent of the classes students saw as part of a career major.

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<sup>8</sup>This finding is consistent with LPS measures of participation in career majors. While the coordinators responding to the LPS indicated that many schools offered one or more career majors, they reported on average that 10 to 12 percent of seniors in the class of 1997 had chosen a career major (based on local definitions).

TABLE IV.2  
EXTENT OF CAREER-FOCUSED ACADEMIC COURSE TAKING

Subject	Percentage of Students Taking Career-Focused Courses, by Years of Each Subject			
	Ever	One Year	Two Years	Three to Four Years
English	3.1	0.9	1.1	1.0
Math	5.9	1.6	1.4	2.8
Science	7.6	2.9	2.3	2.3
Any Subject	11.9	4.5	4.5	5.0
<b>Sample Size: n = 2,159</b>				

SOURCE: STW survey of 12th graders in the class of 1996, Mathematica Policy Research, Inc.

The form of career major for which we have estimated participation is roughly equivalent to what field observation suggests is the most common interpretation of the term. Site visits to local partnerships in the eight in-depth study states suggest that very few member schools are developing special career-oriented programs that engage substantial numbers of students and integrate specific classes (including academic classes) around a career theme. Instead, they are most often developing “career pathways”--charts that recommend which classes students should take if they are interested in a particular broadly defined career area. The criterion we have used for participation in a career-focused program is similarly relaxed, in that it can be satisfied by a student’s selection of individual courses with a career goal in mind. For example, students could be considered to have a career-focused program of study if they were interested in a career in health services, took biology courses, and found these courses relevant to their career goals.

The modest rate of participation in career majors, even using this broad criterion, reflects several challenges that partnerships and schools face in their efforts to help students organize their studies around career-related themes. Some students have difficulty articulating a clear career interest. Some school staff and parents resist the idea of organizing students’ studies around career interests, fearing that academic courses may become narrow and less rigorous. Some guidance staff can suggest specific sequences of academic courses that are appropriate for students with specific interests, but this does not ensure that academic teachers will succeed in relating the content of classes to students’ career interests. Infusing academic curricula with career-related examples or exercises relevant to students’ particular interests is difficult unless students are grouped in academic classes by their career interests, and schedule constraints have limited that practice.

### **3. Most Students Have Workplace Experiences, but Few Positions Are Linked to School**

Workplace activity, a central focus of the STWOA, already involved a large percentage of American students in 1996 in some form. About 88 percent of the class of 1996 in the eight in-depth study states had, at some time during high school, held at least one paid job. About 42 percent reported working in a volunteer or unpaid position. Thus nearly all students appear willing and able to engage in some kind of work experience.

Schools have so far played a minor role in helping students choose workplace activities and in structuring them as learning experiences. Of the 88 percent of students who ever had a paid position during high school, about one in six had found one through school. Schools are responsible for a slightly larger fraction of students' unpaid work experiences: more than a third of students who did volunteer work had found such a position through school.

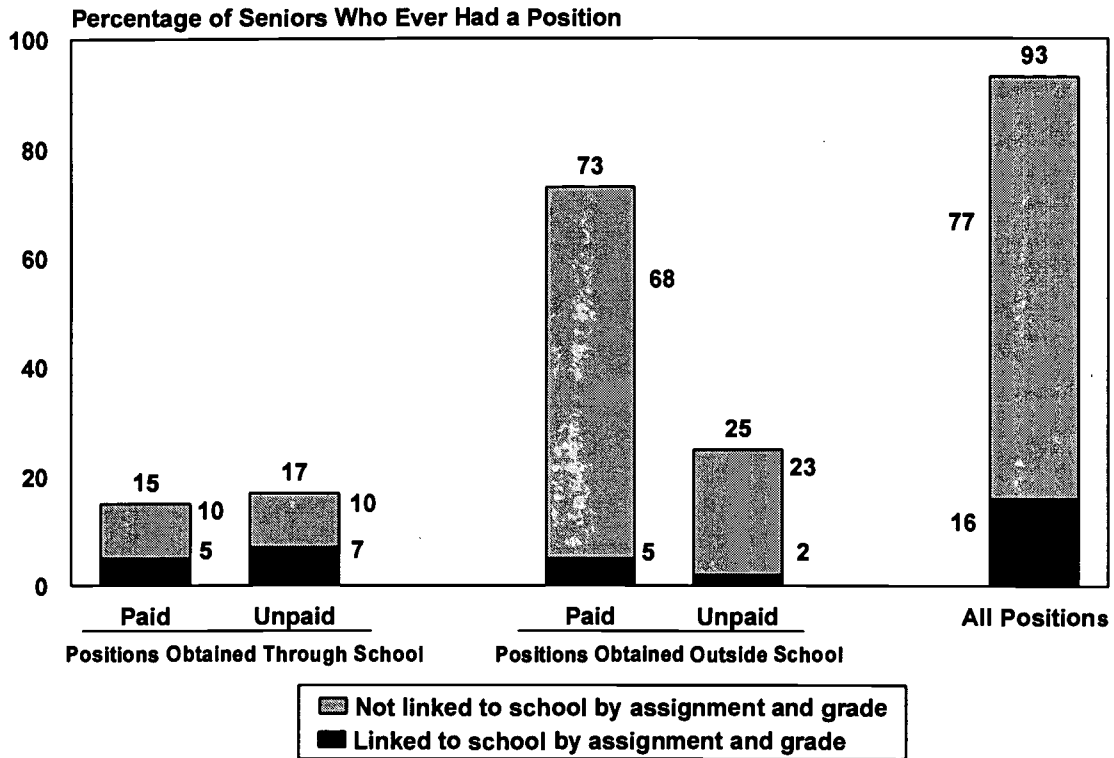
Moreover, most of what students do at workplaces has little connection to their studies at school (Figure IV.2). We considered students' workplace activity to be linked to school if they reported drawing upon a workplace experience for a class assignment and having their worksite performance counted toward a course grade. Only about 16 percent of students reported ever having a position, paid or unpaid, that was connected in these two ways to school.<sup>9</sup>

Positions students found through school were usually not, in their recollection, connected to their school experience, although such positions were more likely to be linked than those they found on their own (Figure IV.2). About one-third of the positions that students obtained through school

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<sup>9</sup>The 1996 LPS suggested similarly low rates of linked workplace positions, using a slightly different definition. About 40 percent of the schools in partnerships responding to the LPS provided estimates of the number of students in the class of 1996 who had had work experiences connected to a career major. They reported that about 12 percent of students had had such an experience.

**FIGURE IV.2**  
**POSITIONS LINKED TO SCHOOL BY ASSIGNMENT AND GRADE**



SOURCE: STW survey of 12th graders in the class of 1996, Mathematica Policy Research, Inc.

staff were linked, compared to only 1 out of 14 that students found through other means. Case study visits confirmed that school staff often help students find jobs that have no connection to school.

Unpaid positions are more likely than paid ones to be connected to school. Based on the recollections of students responding to the survey, about 21 percent of their unpaid positions (whether obtained through school or not) were linked to their school program, in contrast to about 11 percent of paid positions. This difference is due in part to the fact that a higher fraction of students' unpaid positions were obtained through school staff. Another factor is that employers--particularly nonprofit organizations--can often create interesting unpaid internships related to students' studies but have more difficulty offering students paid positions involving comparable responsibilities and learning opportunities.

### C. WHICH STUDENTS PARTICIPATE MOST IN STW ACTIVITIES

A fully developed STW system will engage not only a substantial number of students, but also a broad cross-section of students. Three dimensions of diversity are of particular interest:

- **Academic Achievement.** The STWOA is intended to benefit all students, from the “low-achieving” to the “academically talented,” and to prepare them for postsecondary pursuits ranging from a first job to a four-year college.
- **Personal Background.** State and local partnerships must ensure that access to STW activities is not affected by students’ gender, race, disabilities, or economic status.
- **Urbanicity.** The STWOA explicitly requires states to pay special attention to how STW partnerships will provide opportunities for students in rural communities with low population densities and in depressed urban areas, because of the possibility that workplace activities and options within schools may be limited.

The student survey of 1996 seniors provides a foundation for describing, from a broad perspective the diversity of students involved in STW activities. Activities that we characterize as career development, school-based career majors, or workplace experiences linked to school are identified through students’ recollections and thus include activities that school or partnership staff have little hand in arranging and might consider outside their STW implementation agenda. Workplace activities in particular extend beyond what one could call “STW programs,” since they clearly include experiences that students have arranged through their own contacts. This broad perspective is appropriate, because the ultimate aim for STW implementation is not to build programs, but to ensure that all students have valuable learning opportunities.

The analysis of student participation yielded four main findings, which address the possibility of differences in participation among groups defined by performance in school, gender, poverty, and urbanicity.



## 1. Participation Is Generally Similar for Students of Different Achievement Levels

The STWOA specifically calls on partnerships to address the needs of students at all levels of academic success. Participation patterns among the class of 1996 can clarify the extent to which students of varying levels of school performance are involved in the kinds of activities promoted by the legislation. Drawing on the student transcript data, we examined how participation rates varied among groups of students whose school performance and plans differed along four dimensions:

- ***Class Rank.*** Based on students' GPA, we defined three groups: the top quartile, middle two quartiles, and bottom quartile of their class. Students were classified by their rank at the end of 9th grade (to indicate students' academic standing before participation in most high school STW activities) and at the end of 12th grade.
- ***Attendance Rates.*** We defined groups whose attendance rates in ninth grade were in the top quartile, middle two quartiles, and bottom quartile of their class. A similar measure was constructed based on students' cumulative attendance rate through 12th grade.
- ***Completion of a "College-Prep" Academic Program.*** We defined a college-prep curriculum equivalent to the "New Basics" curriculum: four years of English, two of a foreign language, and three each of science, math, and social studies. Approximately 40 percent of our sample completed this curriculum.<sup>10</sup>
- ***Postsecondary Education Plans.*** Based on their stated plans for six months after high school graduation, students were grouped into those with plans to attend a four-year college, a two-year program, education or training lasting less than two years, or no postsecondary program.

By most of the available measures that distinguish levels of academic performance, students of higher and lower achievement are engaged in STW activities at roughly comparable levels (Table IV.3). There were no significant differences between participation rates for students who completed

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<sup>10</sup>This definition of a college-prep curriculum was advanced in the "Nation at Risk" (National Commission on Excellence in Education 1983). We also experimented with a more intensive definition, which stipulates completing a math class at or above the level of Algebra 2 and a chemistry or physics course. Although only 27 percent of students met this more stringent criteria their rates of participation in STW activities were not appreciably different from other students.

TABLE IV.3

STUDENT PARTICIPATION IN THREE STW COMPONENTS,  
BY SCHOOL PERFORMANCE AND PROGRAM

Group	Percentage of Students Participating		
	Comprehensive Career Development	Positions Linked To School	Career Majors
All Students	63.3	16.1	11.7
Ninth Grade Class Rank (n = 1,761)			
Top quartile	66.5	17.0	17.2*
Middle quartile	62.1	16.2	11.0*
Bottom quartile	65.1	15.9	11.2*
Cumulative High School Class Rank (n = 1,784)			
Top quartile	63.6	17.0	13.2*
Middle quartile	64.6	16.3	13.5*
Bottom quartile	63.1	15.6	9.5*
Ninth Grade Attendance (n = 1,186)			
Top quartile	66.8	15.2	15.2
Middle quartile	65.2	16.6	13.3
Bottom quartile	62.1	15.8	8.7
Cumulative High School Attendance (n = 1,316)			
Top quartile	68.4	14.7	17.0*
Middle quartile	64.4	17.3	16.7*
Bottom quartile	63.2	14.5	9.4*
Basic College Prep <sup>a</sup> (n = 1,784)			
Yes	61.4	14.7	11.7
No	65.7	17.4	13.2
Postsecondary Education Plans (n = 1,754)			
Four-year college	63.4	14.0**	13.7
Two-year college	63.7	21.3**	10.0
Program less than two years	69.5	18.9**	12.8
No plans	58.2	12.9**	8.0

SOURCE: Transcripts and STW survey of 12th graders in the class of 1996, Mathematica Policy Research, Inc.

<sup>a</sup>Basic College Prep is four years of English, two years of a foreign language, and three years of math, science, and social studies.

\*There are significant differences among the groups' participation rates at the .05 level, two-tailed test.

\*\*There are significant differences among the groups' participation rates at the .01 level, two-tailed test.

a college-prep curriculum and those who did not. Nor were there differences in participation among groups with strong or weak attendance records in ninth grade. Involvement in a variety of career development activities and workplace activities linked to school was about equally common for students regardless of their 9th-grade and 12th-grade rank in class or 12th-grade attendance.

Two factors, however, do seem to distinguish the extent of students' involvement in activities promoted by the STWOA. First, the survey analysis suggests that higher-performing students are somewhat more likely to report having a career major as we have defined it--selecting a career area to plan for, taking a course for students interested in that career area, and completing assignments that pertain to the career area. Students with higher class rank in 9th or 12th grades were more likely to describe their school program that way, as were students with stronger attendance all through high school.

The second factor correlated with some aspect of participation is the nature of students' postsecondary plans. Students who planned to enroll in two-year colleges or programs of less than two years were more likely to have participated in a workplace activity linked to their school program than students with either higher or lower educational aspirations.

Despite broadly comparable participation rates, 1996 seniors with higher and lower achievement appear to have participated in school- and work-based activities of somewhat different characteristics.

Two differences were noted:

- ***High-Performing Students More Likely to Have Unpaid Workplace Experience.*** Higher-achieving students were more likely than lower-achieving students to have had unpaid work experience, but less likely to have been in a paid position linked to school (Table IV.4). These differences may be due to greater willingness on the part of academically successful students to forgo wages in exchange for a more educational work experience or may reflect differences in higher- and lower-achieving students' family incomes, need for wages, or access to interesting unpaid positions.

TABLE IV.4  
STUDENT PARTICIPATION IN PAID AND UNPAID WORK  
EXPERIENCE ACTIVITIES, BY CLASS RANK  
(Percentage of Students)

Class Rank in Ninth Grade	Paid Positions		Unpaid Positions	
	Any Position	Linked Position	Any Position	Linked Position
Top Quartile	83.2*	5.4**	51.1**	11.7
Middle Two Quartiles	88.7*	10.1**	42.6**	8.4
Bottom Quartile	89.3*	10.3**	35.7**	7.8
<b>Sample Size: n = 1,760</b>				

SOURCE: Transcripts and STW survey of 12th graders in the class of 1996, Mathematica Policy Research, Inc.

\*There are significant differences among the participation rates for the top, middle, and bottom groups at the .05 level, two-tailed test.

\*\*There are significant differences among the participation rates for the top, middle, and bottom groups at the .01 level, two-tailed test.

- ***Career Majors More Science-Based, Less Vocational for High-Performing Students.*** Among students with career majors, the career-related courses of students with high academic ranking were more likely to be science than Math or English classes. This difference from lower achieving students probably reflects greater interest in medical careers among the higher ranking students.<sup>11</sup> In addition, high performing students with career majors were less likely to take a sequence of vocational classes as part of their program of study (Table IV.5).

Students with higher academic achievement were more likely to perceive a link between their school program and a career goal, in part because they were more likely to articulate such a goal. Half the students in the top quartile of their class said they had selected a career area “to plan for” during high school, compared to 43 percent of other students. This predilection to define a career interest does not seem to be the mechanical result of participation in particular career development activities: students with high grades were not more likely than others to participate in any of the career development activities. It is likely that whatever personal factors contribute to students’ high grades--such as their motivation or parental support--also impel them to define a career goal during high school.

Whatever the reasons, the apparent predisposition of high-achieving students to recognize career goals as a suitable guide for directing their studies could be seen as an opportunity to demonstrate the compatibility of STW and academic success. Parents of both low- and high-achieving students are often skeptical of efforts to organize programs of study around career goals or themes, out of concern that the curriculum would be less rigorous. It appears, however, that the most academically successful are also the most attuned to the link between their studies and their future careers.

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<sup>11</sup>Nearly 40 percent of higher-achieving students were interested in careers in health or medicine, compared to 13 percent of other students in career majors. Many of these students took regular biology and chemistry courses and probably viewed them as relevant to their career goals. Among students identified as having a career major as we defined it, about 84 percent of those in the top quartile took both biology and chemistry, compared to less than 50 percent of other students.

TABLE IV.5

PROGRAMS OF STUDY OF STUDENTS IN CAREER MAJORS,  
BY ACADEMIC ACHIEVEMENT IN NINTH GRADE  
(Percentage of Students in Career Majors)

	Class Rank in Ninth Grade		
	Bottom Quartile	Middle Two Quartiles	Top Quartile
Fraction Taking Vocational Classes, by Number of Classes			
One or less	4.1	11.4	17.1
Two to four	43.6	38.0	60.9
Five or more	52.3	50.7	22.0
Fraction Completing Basic College Prep Curriculum <sup>a</sup>	21.3**	32.1**	56.5**
Fraction Taking Courses Pertinent to Career Area, by Subject			
English	40.3**	27.5**	15.5**
Math	59.0*	57.4*	41.9*
Science	53.2**	60.2**	88.2**
<b>Sample Size: n = 221</b>			

SOURCE: Transcripts and STW survey of 12th graders in the class of 1996, Mathematica Policy Research, Inc.

<sup>a</sup>Basic College Prep is four years of English, two years of a foreign language, and three years of math, science, and social studies.

\*There are significant differences among the participation rates for the top, middle, and bottom groups at the .05 level, two-tailed test.

\*\*There are significant differences among the participation rates for the top, middle, and bottom groups at the .01 level, two-tailed test.

Publicizing that fact could contribute in some small way to defusing parents' wariness of encouraging students to identify career interests as part of their school planning.

## **2. Female Students Are More Likely to Have Workplace Experience Linked to School**

Differences in STW participation rates for students of different personal or background characteristics can help STW leaders identify social and institutional barriers that could impede efforts to engage a full cross-section of students in STW activities. From the survey of the class of 1996 in the eight in-depth study states, we can detect whether particular demographic groups were either underrepresented or overrepresented among students participating in particular STW activities. Using the 12th-grade survey, we defined groups of students based on five characteristics: gender, race, disability, parents' education level, and low income (as measured by family welfare receipt). Only two of these characteristics--gender and family welfare receipt--were significantly associated with STW participation (Table IV.6).<sup>12</sup> The findings pertaining to female students are analyzed below, while those pertaining to students whose families received welfare assistance are discussed in the next section.

While female and male students had comparable employment rates (around 93 percent) during high school, females were more likely to have a work experience linked to their studies. About 19 percent of female students indicated that their most recent work experience was linked to school, compared to 14 percent of male students. The largest gender differences existed among African Americans (Table IV.7). The rate of participation in linked jobs among black females (28 percent)

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<sup>12</sup>Subgroups defined by other variables had higher-than-average rates of participation, but none of these other differences were statistically significant. Among these, the rate of participation in linked work-based activities among African Americans is of particular note. It appears to be driven by (1) the high rate of participation among African American female students, and (2) the concentration of African Americans in urban areas where participation rates tend to be higher.

TABLE IV.6  
PARTICIPATION IN THREE STW COMPONENTS,  
BY STUDENT BACKGROUND

Group	Percentage of Students Participating		
	Comprehensive Career Development	Positions Linked to School	Career Majors
All Students	63.3	16.1	11.7
Gender			
Male	62.1	13.6**	10.7
Female	64.4	18.5**	12.7
Race/Ethnicity			
African American	67.0	22.9	13.1
Latino	60.6	14.9	17.2
White/other	63.2	15.2	11.0
Family Received Welfare			
Yes	66.6	18.3	23.4**
No	62.9	16.2	11.1**
Disability			
Has disability	61.2	19.8	9.3
Has no disability	63.5	15.7	12.0
Parents' Education			
Some postsecondary	63.1	16.0	12.2
No postsecondary	64.5	18.1	11.8
<b>Sample Size: n = 2,203</b>			

SOURCE: STW survey of 12th graders in the class of 1996, Mathematica Policy Research, Inc.

\*There are significant differences among the groups' participation rates at the .05 level, two-tailed test.

\*\*There are significant differences among the groups' participation rates at the .01 level, two-tailed test.



TABLE IV.7

**STUDENT PARTICIPATION IN PAID AND UNPAID WORK EXPERIENCE  
ACTIVITIES, BY GENDER AND RACE/ETHNICITY**  
(Percentage of Students)

	Type of Position					
	Paid or Unpaid		Paid		Unpaid	
	Any <sup>a</sup>	Linked	Any	Linked	Any	Linked
All Students	92.8	16.1	87.8	9.2	41.9	8.7
Male	92.5	13.6**	88.9	8.4	36.2**	6.6**
Female	93.1	18.5**	86.8	9.4	47.2**	10.5**
African American	90.5	22.7	84.1	13.2	46.9	12.5
Male	87.5	15.2*	81.2	8.7	40.2	9.0
Female	92.1	28.1*	86.2	16.4	51.7	15.1
Latino	85.7	14.9	78.3	7.5	40.6	9.7
Male	89.6	14.6	80.9	5.2	37.7	10.3
Female	82.0	15.7	75.9	9.6	43.2	9.2
White/Other	93.8	15.2	89.3	8.7	41.3	7.9
Male	93.4	13.2*	90.7	8.7	35.4**	5.9**
Female	94.2	17.0*	88.0	8.7	46.8**	9.8**
<b>Sample Size: n = 2,156</b>						

SOURCE: STW survey of 12th graders in the class of 1996, Mathematica Policy Research, Inc.

<sup>a</sup>“Any” position includes both positions that are linked and those that are not linked to school.

\*There is a significant difference between the participation rates of male and female students at the .05 level, two-tailed test.

\*\*There is a significant difference between the participation rates of male and female students at the .01 level, two-tailed test.

was nearly twice that of black males (15 percent). Three factors appeared to contribute to these differences: (1) a gender gap in students' awareness of and participation in school job programs, (2) a difference in female and male students' access to or willingness to accept unpaid positions, and (3) differences in the career interests of female and male students.

Female students, and particularly black females, were more aware than males of school programs that placed students in work experience positions. Approximately 63 percent of female students in the class of 1996 knew of such programs in their schools, compared to 55 percent of male students (Table IV.8). Some of this awareness gap may be due to differences in male and female students' interest in securing a paid job or unpaid work experience through school. Female students' interest may be heightened by the kinds of positions available through paid and unpaid school programs. Female students' awareness may also be enhanced because more of their gender peers participate in such programs. These findings suggest, however, that school staff may have been less successful in informing male students about job placement programs.

Female students were not only more aware but also more likely to take advantage of school job programs (Table IV.8). About 31 percent of female students obtained a job through school, compared to 24 percent of male students. Since more than a third of all positions found through school were linked to students' classes, female students' heavier reliance on school staff to find workplace positions accounts for most of the gender gap in workplace activity linked to school. Many of the positions female students found through school appear to be co-op positions. While female students were no more likely than male students to take large numbers of vocational courses, female students--and particularly African American female students--were more likely to have co-op credits on their transcripts.

TABLE IV.8

**STUDENT AWARENESS OF AND PARTICIPATION IN SCHOOL WORK  
EXPERIENCE PROGRAMS, BY GENDER AND RACE/ETHNICITY**  
(Percentage of Students)

	Aware of School Work Experience Programs <sup>a</sup>	Obtained Co-op Work Experience	Obtained Position Through School Staff	Obtained Linked Position Through School Staff
All Students	59.0	12.2	27.9	10.6
Male	55.2**	10.1	24.0**	8.4**
Female	62.5**	14.0	31.4**	12.6**
White/Other	57.9	11.6	26.5	9.7
Male	55.0*	9.8	23.7*	7.9*
Female	60.5*	13.2	24.1*	11.4*
African American	65.4	15.4	36.7	16.3
Male	56.9*	7.3*	25.8*	11.0
Female	71.5*	20.7*	44.4*	20.2
Latino	59.8	13.0	27.4	10.7
Male	54.2	16.5	23.7	10.3
Female	65.1	9.7	30.9	11.1
<b>Sample Size:</b>	<b>n = 2,146</b>	<b>n = 1,757</b>	<b>n = 2,108</b>	<b>n = 2,139</b>

SOURCE: Transcripts and STW survey of 12th graders in the class of 1996, Mathematica Policy Research, Inc.

<sup>a</sup>This variable is defined as the fraction of students who knew about a school work experience program for which they believed they were eligible.

\* There is a significant difference between the participation rates of male and female students at the .05 level, two-tailed test.

\*\* There is a significant difference between the participation rates of male and female students at the .01 level, two-tailed test.

Female students also appeared readier to sacrifice wages to get positions related to their interests and school curriculum. About 47 percent of female students had an unpaid position, compared to 36 percent of males (Table IV.7). Relative to paid positions, unpaid positions are nearly twice as likely to be linked to the school curriculum, regardless of students' gender or race. Female students' willingness to accept unpaid positions thus accounts for much of the gender gap in work activities linked to school.

The gender gap in unpaid workplace experience may be related to another gap: the difference between the rates at which female and male students report expressing a career goal during high school. Over half of female students in the 1996 survey (51 percent) had selected a career area to plan for during high school, compared to 35 percent of male students. Among both males and females, those students who had selected a career interest were more likely to have had unpaid workplace experience. While the direction of causation is not obvious, it appears that female students' interest in clarifying their career goals may prompt them to accept more unpaid positions.

Female students are also more likely to be interested in career areas in which there is a strong tradition of unpaid and co-op work experience. Female students were more likely than males to have chosen a human services career area such as health (selected by 25 percent of female students but only 6 percent of male students) and education (selected by 13 percent of female and 3 percent of male students). In contrast, more males (29 percent) than females (8 percent) selected manufacturing, the building trades, or electronics/computers--areas in which neither unpaid work experience nor paid co-op jobs are particularly common.<sup>13</sup>

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<sup>13</sup> National data on vocational programs suggest that the traditionally female vocational career areas, such as health, are more likely to involve structured co-op activities than traditionally male areas such as trades and manufacturing programs. About 1 out of 6 credits earned in health programs is a co-op credit, compared to 1 out of 26 credits in trade and industry (Levesque et al. 1995).

Indeed, female students in the 1996 sample were more likely to find their paid or unpaid positions in industries that have traditionally maintained links to school programs (Table IV.9). Among those who had worked at paid or unpaid positions, female students were more likely than males to find their positions in schools, health institutions, and public agencies. Work in these human services industries was more likely to be linked to students' curriculum than work in other sectors.<sup>14</sup>

An important outstanding question is whether gender differences in work experience and career goals contribute to the emerging gender gap in educational achievement. Over the past 20 years, the long-standing national gap between male and female educational attainment closed, and now females have surpassed males for the first time (National Center for Education Statistics 1997). In 1976, 86 percent of males 25 to 29 years old had graduated from high school, compared to 83.5 percent of females in that age group. Among high school graduates, 58 percent of males had completed at least one year of college, compared to 46 percent for females. Today, both of these gaps have been reversed. By 1996, American female students had high school graduation rates (88 percent) slightly higher than males (86.5 percent), and female high school graduates were more likely (66 percent) to have completed at least a year of college than males (63 percent).<sup>15</sup>

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<sup>14</sup> However, in every industry except retail and restaurants, females were more likely to perceive their positions as linked to their school curriculum.

<sup>15</sup> Together these patterns have created a four-percentage-point difference in college enrollment. While females are more likely to attend both four-year and two-year institutions, the differences are particularly pronounced for two-year career programs (College Board 1997).

TABLE IV.9  
INDUSTRIES PROVIDING POSITIONS TO MALE AND FEMALE STUDENTS

Sector	Paid Positions				Unpaid Positions			
	Percentage of Students with Positions		Percentage of Positions Linked to School		Percentage of Students with Positions		Percentage of Positions Linked to School	
	Male	Female	Male	Female	Male	Female	Male	Female
Any Position	88.4	86.6	8.4	10.0	35.2	46.2	6.8	10.5
Construction/Manufacturing/ Mechanic	17.5**	5.8**	9.5*	27.3*	2.9*	1.4*	38.8	23.8
Health/Human Services	7.8**	13.9**	18.9	23.0	16.3**	28.1**	17.1**	27.3**
Retail/Restaurant	45.2	50.1	7.8	5.5	1.6	2.1	21.9	11.3
Other	18.3	17.0	9.8	14.5	15.9	15.7	17.3	15.1
<b>Sample Size</b>	<b>n = 2,203</b>		<b>n = 1,901</b>		<b>n = 2,203</b>		<b>n = 882</b>	

SOURCE: STW survey of 12th graders in the class of 1996, Mathematica Policy Research, Inc.

\* There is a significant difference between the fraction of male students and the fraction of female students with positions in this industry at the .05 level, two-tailed test.

\*\* There is a significant difference between the fraction of male students and the fraction of female students with positions in this industry at the .01 level, two-tailed test.

These national differences are reflected among students in the STW evaluation survey. Female students in the 12th-grade survey of 1996 seniors in the eight in-depth study states were much more likely (79 percent) to report that they had plans to attend a two- or four-year college within six months of graduation than were male students (63 percent). Moreover, males were more likely (16 percent) than females (10 percent) to have no plan for enrolling in any postsecondary education or training.

While differences between male and female students' high school experience may not be the chief cause of the emerging gender gap in educational achievement, it may be a contributing factor. The fact that more female students formulate a career goal during high school may both reflect and reinforce female students' desire to complete high school successfully and enroll in an appropriate postsecondary program. Female students also appear to have more work experiences--particularly unpaid jobs--that are connected to their career interests and high school studies. These work experiences may demonstrate the value of education more clearly than the paid jobs that figure more heavily in male students' experiences.

### **3. Disadvantaged Students Focused on Careers, but Results Are Unclear**

For students who do not pursue postsecondary education or training, focusing on and preparing for a career goal in high school is particularly important. A high school diploma alone, over the past two decades, has declined substantially in value as a ticket to good employment. Unless high school graduates entering the job market have acquired particular skills or developed a relationship with an employer willing to train them, their prospects for stable employment may be dim. An important challenge for STW partnerships, therefore, is to help students who do not want to pursue college education to acquire marketable skills during high school and obtain a decent job.

Economically disadvantaged students are more likely to enter the labor market right after high school than are students from higher-income backgrounds. In the 12th-grade student survey, five percent of the sample were students from families that had received public assistance in the past two years. These students were less likely (21 percent) to complete a college-prep curriculum--the curriculum completed by about 40 percent of other students. Just before the end of 12th grade, these students were also less likely to have plans to attend college (51 percent) than were other students (73 percent). Of these students, a somewhat larger percentage had no plans for postsecondary education (13 percent), compared to other students (9 percent). It is not surprising, therefore, that in evaluation site visits we found concerns among partnership leaders for the career paths of non-college-bound youth closely entwined with concerns about disadvantaged youth.

The 1996 local partnership survey and evaluation site visits suggest that partnerships and their member schools do indeed pay some special attention to the importance of a career-oriented strategy for disadvantaged students. Most often, partnerships reported career guidance efforts: about 72 percent of partnership coordinators indicated that at least some of their member schools offered special career guidance to economically or educationally disadvantaged students. Most partnerships reported that some of their schools had some kind of outreach or promotional materials (58 percent) or regularly scheduled progress evaluations (66 percent) targeted to economically and educationally disadvantaged students.

Perhaps in part because of such efforts, low-income students responding to the evaluation survey were more likely than other students to perceive a career focus for their studies--what we have labeled a career major. Among the students from families receiving welfare, 24 percent had both selected a career area and taken academic classes they viewed as for students with the same career focus. This rate of participation in career majors was more than twice that of other students (11



percent). This fact is particularly striking, because students from these poor families had below-average grades and very poor attendance, and students with poor grades and attendance were less likely to have had a career major as we have defined it using the student survey data (Table IV.3).<sup>16</sup> Despite the correlation between poverty and poorer school performance, it appears that there is nevertheless a strong tendency for low-income students--through their own choices or those to which school staff guide them--to prepare for a career.

However, the high rate of low-income students' involvement in career-oriented studies appears to be due more to the way these students select courses than to a particularly strong focus on a career goal. Students from families receiving welfare were only slightly more likely to report having selected a career area to plan for in high school than other students (49 percent compared to 43 percent). Among those who did specify a career interest, however, 49 percent of those receiving welfare said they had taken an academic course for students with their career interests, compared to only 26 percent of other students. This suggests that the career counseling that schools provided to disadvantaged students may have been focused more on course selection than on formulation of career goals.<sup>17</sup>

The career majors that disadvantaged students perceived in their school program are noticeably different from those of higher-income and high-achieving students. In particular, among students in career majors, those from families receiving welfare were less likely to consider science classes

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<sup>16</sup>About 37 percent of students receiving welfare benefits had ninth-grade GPAs in the bottom quartile of their class, and about 43 percent had ninth-grade attendance rates in the bottom quartile.

<sup>17</sup>This interpretation is supported by the fact that the students receiving welfare were, if anything, less likely to complete a career interest inventory than were other students (although, because of small sample sizes, the difference was not statistically significant).

part of that major. Science classes made up 33 percent of the academic classes named by those students as part of their career major, compared to 45 percent for all other students.

The experiences and aspirations of disadvantaged students with reported career majors are different in other ways as well. Only 20 percent of the low-income students who reported what we call a career major had completed a college-prep curriculum, compared to 40 percent of other students in career majors. A large segment of the poor students planned to attend a vocational or trade school lasting less than two years (43 percent, compared to only 15 percent of other students), and many had no specific postsecondary plans for either full-time or part-time study (15 percent, compared to 8 percent). Moreover, nearly all the students receiving welfare benefits in career majors (93 percent) indicated that they had taken some work-readiness class during 11th or 12th grade, compared to about 82 percent of other students in career majors and 72 percent of all students.

Although more often oriented in these apparent ways to getting ready to work, in some respects the disadvantaged students did not appear to be particularly prepared for entering the job market right after high school. Students receiving welfare took about the same number of vocational courses as other students, whether or not they had a career major.<sup>18</sup> Hence it is not clear whether these students' programs were specifically designed to develop any technical skills valued by some employers. Moreover, students who received welfare were not very likely to have a job lined up after graduation: only 59 percent had a job offer at the end of 12th grade, compared to 68 percent of other students. These differences are particularly striking, since only 60 percent of the

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<sup>18</sup>There is no statistically significant difference in the number of vocational courses taken by students in welfare families and other students. About 89 percent of welfare family students take more than one vocational course, and 42 percent take five or more courses; among other students, these figures are 87 percent and 38 percent, respectively. Among students with career majors, there is an even smaller difference in the number of vocational courses taken by welfare family students and other students: about 88 percent of both groups take more than one vocational course, and 42 percent take five or more courses.

disadvantaged students planned to enroll in a full-time postsecondary education or training program, compared to 71 percent of other students.

These findings highlight persistent challenges partnerships face as they try to address the needs of disadvantaged students. These challenges include:

- Increasing students' ability to take advantage of some kind of postsecondary education or training related to career goals
- Helping students establish a strong employer relationship that can lead to ongoing employment after graduation
- Enhancing the image and content of vocational programs so that students can develop marketable skills

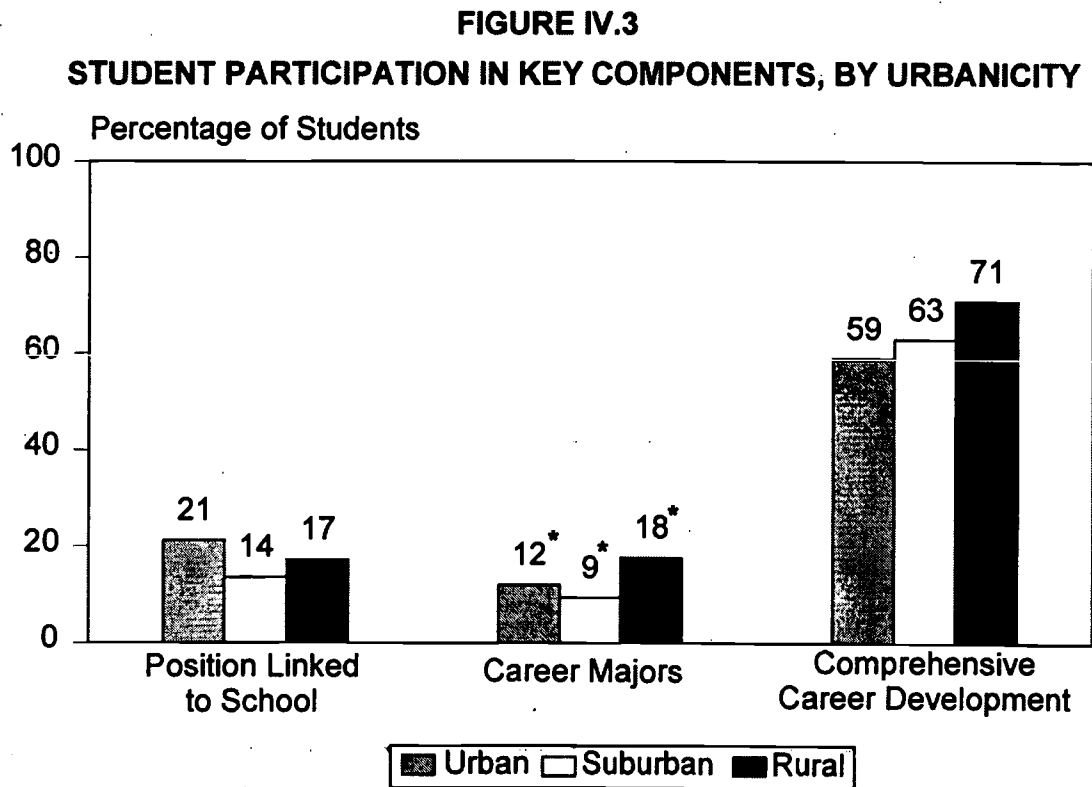
#### **4. Students in Rural Schools Are Most Likely to Participate in Career Majors**

The STWOA understood that location and economic conditions could heighten the importance of successful STW systems and intensify implementation challenges. The legislation (1) provided for special grants directly to partnerships in high-poverty urban and rural communities; and (2) required that states receiving implementation grants support STW initiatives that will “over time cover all geographic areas in the state, including urban and rural areas.” Concerns about the availability of employment and the number and range of employers to provide workplace activities for students are particularly pressing for many rural areas and economically stressed urban areas.

Both urban and rural areas face these challenges. Youth unemployment rates have historically been highest in low-income urban communities, reaching 22 percent in 1996 for cities nationwide, compared to about 15 percent in both suburban and rural areas (Current Population Survey 1996). Although rural youth have lower unemployment rates, the range of employment opportunities in rural areas is often quite limited. Hence rural schools often have difficulty finding workplace positions related to students' career interests and program of study, as reflected in the relatively

small fraction of rural students participating in co-op nationally (Levesque et al. 1995). Because of these apparent challenges, we used the student survey data, combined with information on the location of partnership school districts, to examine whether students' participation in STW component activities differed in rural, urban, and suburban areas.<sup>19</sup>

The survey of 1996 seniors in the eight in-depth study sites suggests that students in rural districts were on average more likely than students in suburban or urban districts to have had a school program with an emphasis on careers (Figure IV.3). Rural students were significantly more likely to report the career major experience of selecting a career area to plan for and taking academic courses they saw as designed for students with that interest. They were also more likely to have



SOURCE: STW survey of 12th graders in the class of 1996, Mathematica Policy Research, Inc.

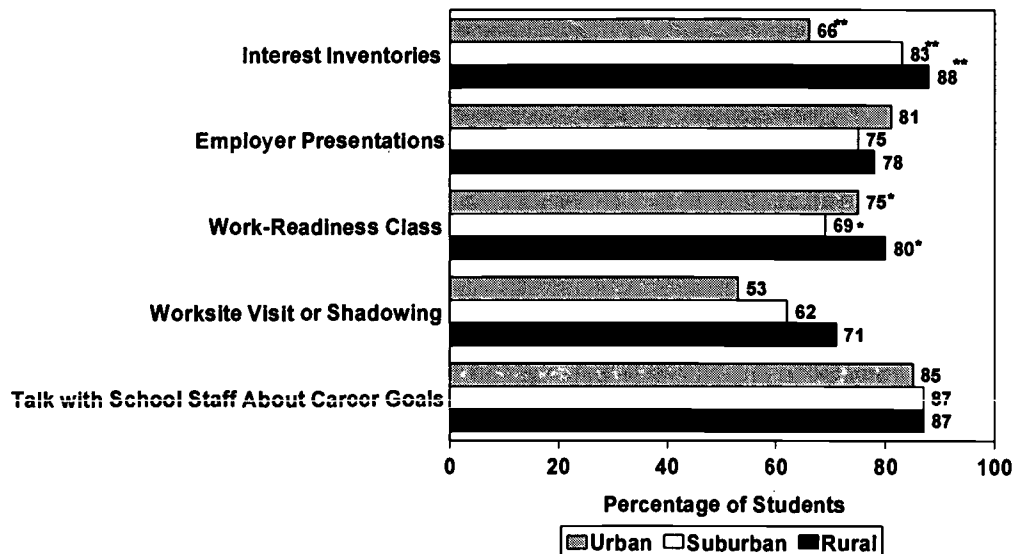
\* Difference among three rates is statistically significant at the 5 percent level, two-tailed test.

<sup>19</sup>For this analysis, students were considered urban, suburban, or rural on the basis of the classification of their school district in National Center for Education Statistics files.

participated in a comprehensive set of career development activities.<sup>20</sup> These high rates of participation may reflect rural students' extensive involvement in vocational programs.<sup>21</sup> Urban students in the survey more often reported workplace activity linked to school than suburban or rural students, but these differences were not statistically significant.

Rural students also appear more likely to have participated in some activities to help them formulate or clarify career interests (Figure IV.4). Students in rural areas participated more than

**FIGURE IV.4**  
**STUDENT PARTICIPATION IN CAREER DEVELOPMENT ACTIVITIES,**  
**BY URBANICITY**



SOURCE: STW survey of 12th graders in the class of 1996, Mathematica Policy Research, Inc.

\* Difference among three rates is statistically significant at 5 percent level, two-tailed test.

\*\* Difference among three rates is statistically significant at 1 percent level, two-tailed test.

<sup>20</sup>Simple differences in rates of participation in a comprehensive set of career development activities across urban, rural, and suburban districts were not statistically significant. However, as indicated in Appendix C, these differences are significant when we control for the background characteristics and academic performance of students and the percentage of students receiving free lunch in their school.

<sup>21</sup>The origins of this pattern may be related to the historic importance of agricultural education in rural areas. However, rural enrollment is now relatively high not only in agricultural vocational programs but also in business, mechanical/repair, and precision production programs. About 56 percent of rural students took five or more vocational classes in high school, compared to 34 percent of suburban students and 29 percent of urban students (Levesque et al. 1995).

their urban or suburban counterparts in completing interest inventories and visiting worksites.<sup>22</sup> Rural partnership leaders at in-depth study sites noted that worksite tours are appealing substitutes for individual work experience. Transporting students as a group to a worksite is a common strategy for avoiding the complex logistical problem of getting individual students to distant worksites.

Achieving some career focus in the high school program of studies was also more common for rural students than others. Over 54 percent of rural students in the 1996 survey indicated that they had selected a career area to plan for, compared to 41 percent of suburban students and 39 percent of urban students. Among those selecting a career area, slightly more rural students (33 percent) took classes they viewed as designed for their career interests than did urban students (31 percent) or suburban students (24 percent). Thus the overall rate at which students perceived something we can label a career major reached 18 percent in rural areas, considerably higher than in urban areas (12 percent) or suburban areas (10 percent).

Among students with low levels of academic achievement, those attending rural schools are much more likely to have a career major focus for their studies (Table IV.10). Surveyed students in suburban schools were about equally likely to report such a focus regardless of their academic performance, but at generally low levels. In urban areas, students from the top quartile of academic performance were clearly more likely (21.6 percent) than the lowest quartile (8.3 percent) to have

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<sup>22</sup>Although not shown in Figure IV.4, there were particularly pronounced differences in the use of worksite visits in different communities. The fraction of students participating in worksite visits was 50, 58, and 67 percent in urban, suburban, and rural schools, respectively. There were less substantial differences in use of job shadowing, which engaged 24, 22, and 31 percent of students, respectively.

TABLE IV.10

STUDENT PARTICIPATION IN CAREER MAJORS,  
BY URBANICITY AND NINTH-GRADE GPA  
(Percentage of Students)

Urbanicity	Class Rank in Ninth Grade		
	Top Quartile	Middle Two Quartiles	Bottom Quartile
Urban	21.6**	10.7**	8.3**
Suburban	11.4	10.0	8.1
Rural	24.0	12.8	23.6
<b>Sample Size: n = 1,720</b>			

SOURCE: Transcripts and STW survey of 12th graders in the class of 1996, Mathematica Policy Research, Inc.

\*\* There is a significant difference in the participation rates among the top, middle, and bottom groups at the .01 level, two-tailed test.

a deliberate career focus in their studies.<sup>23</sup> Rural students from both the highest and lowest academic ranks were engaged in a career focus for their studies at relatively high rates.

These differences correspond to field observations about local reactions to the idea of bringing a career focus into the curriculum. In some of the urban communities the evaluation team visited, parents and teachers were concerned that structured activities designed to help students define a career-focused program of study might lead students who were having academic difficulties to be “tracked” into second-rate vocational and academic classes. In affluent suburban communities, we have often heard of a general skepticism among parents and teachers about departing from a strictly academic program geared primarily to college admission. In rural schools we visited, a focus on careers seems more culturally acceptable.

These findings raise difficult questions about how to promote the idea of a career focus for students’ high school programs. The widespread stigma still attached to vocational programs has prevented many schools from developing structured programs of study linking academic and vocational courses around career areas. Even where partnerships have created such integrated programs of study, they have had difficulty recruiting many students into them. Many schools have adopted an alternative approach: “pathway guides” that advise students which existing classes would further their general career interests, a strategy that has the advantage of potentially applying to all students. The question remains, however, whether this approach will be powerful enough to boost the sense of directedness and career orientation among lower-performing students, particularly in urban areas. If it is not, the challenge will be how to develop and promote more integrated career

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<sup>23</sup>Of still greater concern is that the lowest rate of career major involvement was among low-achieving male students (4.6 percent).



pathways, particularly those that can attract and retain students with weaker academic performance, without stigmatizing these programs of study.

## V. CONNECTING THE PARTS OF A STW SYSTEM

The STWOA defines a comprehensive educational strategy and promotes it as potentially relevant for all youth. It emphasizes a coherent, related set of experiences--career development, career-focused programs of study, and work-based learning--for students at all levels of academic talent and aspiration. Gauging implementation progress therefore requires evidence of large-scale, inclusive participation in a set of complementary components, rather than just the existence or expansion of programs or activities for particular segments of the student population.

Using early STW implementation data, we have developed indicators of the breadth and diversity of partnership, school, and student involvement in STW systems. Earlier chapters examined availability of and student participation in specific components. Here, we address the extent to which STW components have been brought together in schools and in students' experiences. Our main findings, based on the 1996 LPS and student survey, are:

<i>Major Findings on Comprehensive Implementation and Participation</i>
<ul style="list-style-type: none"><li>• <b><i>Multicomponent implementation was rare in 1996, and it was concentrated among small partnerships.</i></b> At that early stage, about 13 percent of all partnerships reported that three-quarters or more of their schools offered the key STW features--career development, career majors, and workplace activities--in ways that could engage particular students in all three.</li></ul>
<ul style="list-style-type: none"><li>• <b><i>Relatively few students were involved in multiple STW activities.</i></b> In the early stages of STW implementation, two percent of seniors in the class of 1996 participated in all three STW components. Multicomponent participation was highest among vocational students, students from urban and rural areas, and students with relatively good school attendance.</li></ul>
<ul style="list-style-type: none"><li>• <b><i>Substantial challenges remain for system development.</i></b> Fulfilling the broad system-building goals of STWOA will require greater consistency of interest and approach among partners, connectedness among students' STW activities, and breadth of student, school, and employer participation. Achieving each of these objectives will require a sustained commitment from states and from local partnerships.</li></ul>

Building a STW system is likely to be a gradual, evolutionary process. In the early stages, we would expect STW partnerships to expand and improve particular programs or activities for students and to develop habits of collaboration and coordination. Such activity is evident in many communities, based on evaluation site visits conducted in 1997. In the longer term, however, true “systems” will emerge only if states, partnerships, school districts, and other members can make available, widely and consistently, the full set of experiences promoted by the STWOA in ways that engage a large and diverse student population. As the evaluation continues, we will gauge this progress by measuring:

- The extent to which the main STW components are available in schools in ways that allow them to be connected for individual students
- The scale of student participation in a combination of the main STW components and the degree of diversity of the “multiple-component” participants

As later surveys are completed, they will allow us to construct these indicators again and compare them to what we find now using data from the first LPS and student surveys in 1996. Continued growth in these indicators would suggest that STW implementation is achieving greater breadth, consistency, and connectedness--both for partnerships and for their students.<sup>1</sup>

In this chapter, we examine (in Section A) the early extent of “high-level implementation” from the partnership and student perspective. We assess the prevalence and consistency with which the three key STW components we have focused on were available in combination--and thus potentially connectable for students. Using the student survey data, we describe the extent to which students participated in a similar combination of STW components and describe *which* partnerships and

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<sup>1</sup>See Chapter I of this report for a detailed discussion of these system measurement criteria. Other criteria--including the continuity and sustainability of STW efforts--will be discussed in later reports.

students were at that high-level of STW involvement. We define high-level implementation using the three components highlighted earlier in the report--career development, career majors that include some curriculum integration, and workplace activities that are generally of significant duration (paid jobs and unpaid internships) and linked to school. In Section B, we discuss what is still needed for STW implementation to be considered a success in building a system.

#### **A. EARLY MEASURES OF MULTIPLE-COMPONENT INVOLVEMENT**

Surveys conducted for the evaluation provide a useful basis for judging the development of STW systems. The LPS offers an institutional perspective--the extent to which partnerships and schools, with the help of other partners, have made STW opportunities available. The student survey indicates actual participation in STW components. The survey measures presented here reflect the availability of programs and activities before STW implementation efforts gathered momentum. Subsequent rounds of the surveys, however, will allow us to measure progress in system prevalence, consistency, and connectedness over time. For now, we have baseline indicators of four measures of system implementation:

- The extent to which partnership schools make available workplace activities linked to career majors, as well as the most common forms of career development activity
- The types of partnerships that have achieved such multicomponent implementation
- The degree of student participation in multiple STW component activities
- The diversity of the student population that has been involved in multiple STW components

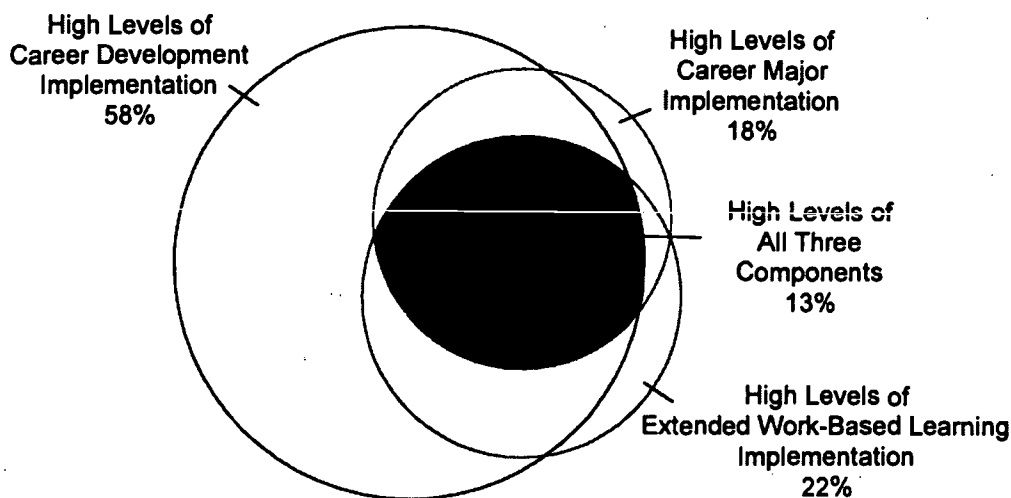
##### **1. Early Indicators Suggest Most Partnerships Are Not at “High-Implementation” Stage**

Developing comprehensive STW systems is likely to require several phases. At the start, individual schools may concentrate their attention and resources on a single STW component.

Evaluation field research suggests that, generally, partnerships and schools first emphasize career development, curriculum changes, or workplace activities, but not all three at once. Over time, however, we might expect partnerships and schools to make STW components more widely available, so that the components can be more coherently linked and students can be involved to some extent in all of them. This stage could be considered advanced STW system implementation, particularly if many students participate in the multiple components.

The LPS results confirm that, in 1996, relatively few partnerships were implementing multiple components broadly across their member schools (Figure V.1). At that early stage, about 13 percent

**FIGURE V.1**  
**HIGH LEVELS OF PARTNERSHIP IMPLEMENTATION**  
**OF KEY STW COMPONENTS**



**Percentage of Partnerships Reporting More Than 75% of  
Their Member High Schools Implementing Components**

SOURCE: STW Local Partnership Survey (LPS), fall 1996, Mathematica Policy Research, Inc.

of partnerships had made all three key STW components available, with linkages between workplace activity and a chosen career major, in at least three-quarters of their member schools.<sup>2</sup> This result is based on a liberal definition of component availability, which requires that schools make available career development activities in academic or vocational classes, a career major that has a written course sequence and groups some participating students by career area in at least one academic class, and a job or internship linked to the major.<sup>3</sup>

Even in high-implementation partnerships, few students were participating in a comprehensive range of STW components that included a paid or unpaid workplace experience related to a career major they had chosen. On the basis of those partnerships' LPS responses, about 5.2 percent of the 12th graders in those partnerships' schools were involved in both components.<sup>4</sup> Thus, this early measure of multiple-component implementation probably reflects the existence of special programs, such as youth apprenticeships or career academies, that involve relatively small numbers of students. It is clearly too early to claim that partnerships or partnership schools had consistently reached a high level of system implementation in 1996.

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<sup>2</sup>Although we would like to measure precisely whether each school offers all three STW components, we cannot. To limit response burden, we did not ask partnership coordinators to identify specific schools and the components each offers. Instead, we asked how widely available each component was across partnership schools. If three-quarters of a partnership's schools make each of the three components available, there is a high probability that many of the schools are implementing all three. If we were to apply a lower standard (for example, 30 percent of schools) to each component, it would provide little assurance that individual schools were implementing all of the features.

<sup>3</sup>For work-based learning, we used the maximum of the number of schools offering students paid school year jobs or unpaid internships related to a career major.

<sup>4</sup>The LPS did not collect data on the extent of students' participation in career development activities, but field observation and the student survey suggest that, where these activities are offered, they involve most students.

This early estimate of high-level implementation depends largely on the particular definitions we use in measuring implementation of key STW components. Our measures focus on particular strategies for implementing STW components, and may not fully capture STW system implementation in all partnerships. Some STW practitioners might consider other aspects of STW or other ways of defining STW components as more important than the way we define career development, career majors, or work-based learning indicators. Less restrictive definitions, however, do not dramatically change the judgment that there were few high-level, multiple-component partnerships in 1996.<sup>5</sup>

Examination of which partnerships had achieved this high level of implementation in 1996 underscores the remaining implementation challenge. Most partnerships that met the criterion for high-level implementation were very small and usually included just one school. Multicomponent implementation is thus even less common than the overall analysis suggests. Substantial enhancements in partnerships' capacity must occur to make all the STW components widely available.

## **2. Student Involvement in Multiple Components Is Rare in Early Implementation Stage**

"Getting to scale" has been a widely voiced goal of STW practitioners. This objective is consistent with the aims of the STW legislation: the STWOA was passed to create opportunities for a large number of students to have a coherent, related set of STW experiences that prepare them for future careers. Thus, one measure of implementation success--reflecting prevalence, consistency,

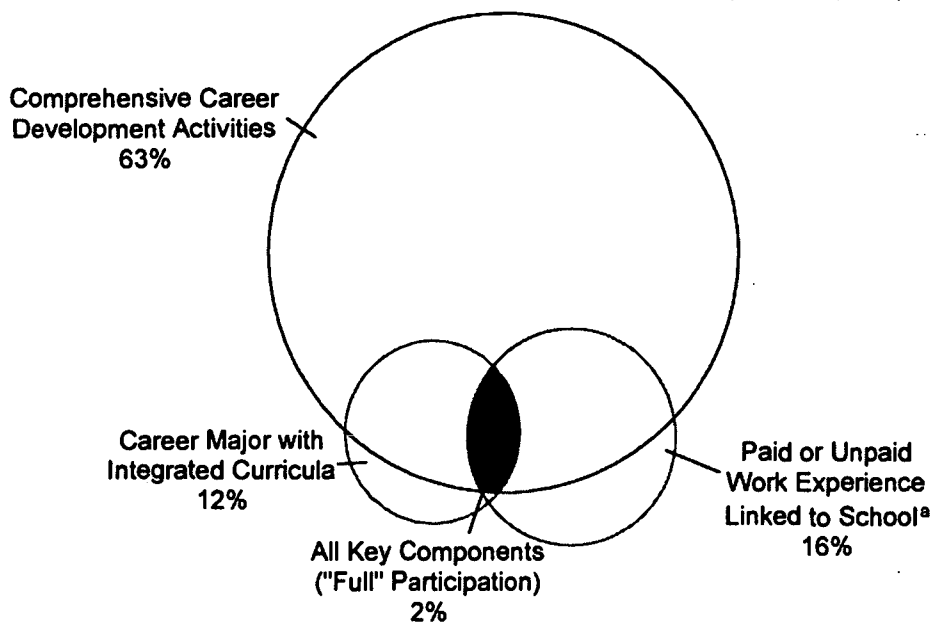
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<sup>5</sup>We also tried more liberal definitions. For example, one alternative defined career development in the same way but defined career majors without any requirement that students be grouped in an academic class by career area; it considered job shadowing and worksite visits as work-based learning, even without any stated linkage to a career major. Under this definition, 23 percent of partnerships would be considered to be at a high-implementation stage.

and connectedness in system building--will be the number of students who participate in a combination of STW activities.

As noted in the previous evaluation report, few students could be described as having engaged in all three STW components of interest (Figure V.2). This conclusion was based on the student

**FIGURE V.2**  
**STUDENT INVOLVEMENT IN KEY STW COMPONENTS**  
**IN MEMBER HIGH SCHOOLS**



SOURCE: STW Survey of 12th graders in the class of 1996, Mathematica Policy Research, Inc.

<sup>a</sup> Work experience is "linked" to school if workplace performance counts towards school grades and class assignments draw on the workplace experience.

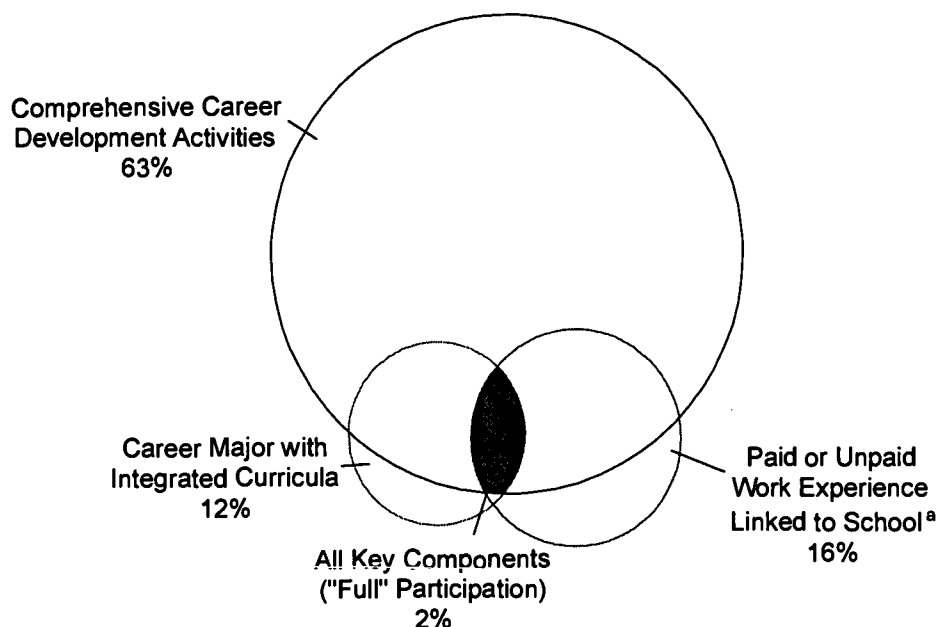
survey of a representative sample of high school seniors in spring 1996 in the eight in-depth evaluation states. Although substantial proportions of the class of 1996 participated in comprehensive career development, far fewer had organized their studies around a career goal (career major) or ever had a workplace experience linked to their school curricula. As a result, only



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about two percent of all 12th graders in the in-depth study states' STW partnership schools had participated in all three STW components as we defined them.<sup>6</sup>

The low level of multiple-component participation measured in 1996 is not surprising. At that point, many partnerships had only recently received STWOA grants and were just beginning to focus on STW implementation. It would be unrealistic to expect that large numbers of partnerships or schools would have been able to concentrate on expanding several aspects of STW systems at the same time or pace. Moreover, work-based activities and career majors involved somewhat different groups of students and schools, which limited the number of students who could participate in all three activities (see Chapter IV). Analysis of the 1998 senior survey will provide evidence of the extent to which comprehensive involvement in STW activities is growing.

### **3. Comprehensive STW Experience Is Most Common So Far Among Vocational Students**

The STWOA was passed to provide seed money for a broad spectrum of activities intended for a wide range of students. It explicitly calls on states and local partnerships to ensure access to STW activities for all students. Much of the discussion leading up to the legislation, however, revolved around proposals to emulate the European apprenticeship system in American education. That focus may have contributed to an early tendency in some local partnerships, observed in our first site visits in 1996, to view STW as an extension and improvement of vocational education. However, the legislation as finally passed and the vision of most federal and state STW leaders have been broader, emphasizing strategies to help students follow successful paths toward any career.

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<sup>6</sup>This measure indicates the extent to which students experience a combination of the STW components, but it may actually overstate the connectedness of these experiences. The student survey cannot reveal, for example, whether career development activities are used consciously to select and define subsequent course choices or work-based learning activities.

One aim of the evaluation, therefore, is to determine whether the broad set of STW experiences encouraged by the STWOA engage a narrow or wide range of students. We used the survey of high school seniors in spring 1996 to determine the characteristics of students who had participated in all three major STW components during their high school years. STWOA-funded efforts probably did not have much effect on seniors in 1996; thus, their participation patterns reflect, to a large extent, programs and activities inherited by STW partnerships. As with measures of the scale of multicomponent participation, the characteristics of the 1996 seniors who were most fully engaged in STW activities will serve as a baseline for comparison with the range of students in the classes of 1998 and 2000 participating in the same activities. High (and increasing) levels of diversity in this multicomponent participant group will support the contention that the STW system has achieved broad participation.

Although participation in all three STW components was rare among all segments of the class of 1996, it was more common among students in intensive vocational programs than among others (Table V.1). Students who had taken five or more vocational courses represented only 37 percent of the student survey sample but made up nearly 60 percent of those who had experienced all three STW components. Involvement in all three components was still exceptional, however, reaching 3.8 percent among the vocational students (compared to .5 percent of students taking one or fewer vocational courses and 1.8 percent who had taken two to four vocational courses).<sup>7</sup> This early pattern probably reflects the similarity of many STW objectives--career development, integration of academic and vocational instruction, and work-based learning--with those of initiatives grounded

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<sup>7</sup> Although the differences were not statistically significant, given the small participation rates observed, our estimate of the three-component participation rate for students completing a college-prep curriculum was 1.6 percent, compared to 2.9 percent for others.

TABLE V.1

STUDENT PARTICIPATION IN ALL THREE STW COMPONENTS,  
BY STUDENTS' BACKGROUND

Group	Percentage of Students Participating in All Components
Gender	
Male	2.2
Female	2.1
Race/Ethnicity <sup>a</sup>	
African American	4.5*
Latino	2.0*
White/other	1.8*
Urbanicity <sup>a</sup>	
Urban	3.3**
Suburban	0.8**
Rural	3.9**
Cumulative High School Class Rank	
Top quartile	2.2
Middle quartile	2.9
Bottom quartile	1.3
Cumulative High School Attendance	
Top quartile	3.8**
Middle quartile	3.7**
Bottom quartile	0.3**
Basic College Prep <sup>b</sup>	
Yes	1.6
No	2.9
Number of Vocational Courses	
At Most One	0.5*
Two to four	1.8*
Five or more	3.8*

<sup>a</sup>Differences in participation rates by race/ethnicity and by urbanicity were not statistically significant in multivariate regression analysis, and are therefore not robust results.

<sup>b</sup>Basic College Prep is four years of English, two years of a foreign language, and three years of math, science, and social studies.

\*There are significant differences among the groups' participation rates at the .05 level, two-tailed test.

\*\*There are significant differences among the groups' participation rates at the .01 level, two-tailed test.

in vocational education. For example, the idea of students' organizing their studies around a career goal was first put into practice by vocational educators.

The first student survey also suggests, as did our early site visits, that involvement in the full range of STW components was least likely in 1996 in communities where students generally expected to go to a four-year college. Students in suburban districts had been involved in all three components at a rate of only .8 percent, compared to 3.3 percent of urban students and 3.9 percent of rural students. This difference appears to reflect the common reports we heard in suburban partnerships that many parents and teachers are skeptical about integrated, career-focused programs being appropriate for college-bound youth. Similar differences were observed by racial/ethnic group. Multicomponent participation among white students was 1.8 percent, compared to 2.0 percent among Latinos and 4.5 percent among African Americans.

Nevertheless, those who had been involved in multiple STW components were fairly serious about their education. For example, they had somewhat better attendance than the average student--perhaps because choosing a career goal and organizing one's studies around it reflects a certain level of engagement in school. Nearly all the multicomponent participants (97 percent) had attendance rates in the top three-quarters of their graduating class. While students taking many vocational courses tend to have lower attendance on average, the ones who had participated in all three STW component activities had better attendance records than their classmates.<sup>8</sup>

These patterns suggest an important aspect of the challenge of STW implementation. To create a STW system, partnerships must expand the availability and appeal of STW activities so that a higher proportion of students can benefit from the full set of key STW components. Early data on

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<sup>8</sup>Among students taking five or more vocational courses, 71 percent had attendance rates in the top three-quarters of their class. Almost all (97 percent) of the multicomponent participants were in the top three-quarters of their class in attendance.

comprehensive participation indicate that continued attention must be paid to developing integrated, career-focused programs of study that attract students of all interests and abilities. The next section discusses some of the challenges that lie ahead

Partnerships will certainly continue to develop and expand STW components and initiatives, but it is important to acknowledge what remains to be done in trying to bring the parts together into a system.

## **B. PATHS TO GREATER SYSTEM IMPLEMENTATION**

It is not surprising that, so far, STW partnerships have not been able to connect key STW components within many schools and for many individual students. When the first local partnership survey was administered in fall 1996, some states had just received STWOA implementation grants and awarded them to local partnerships; many partnerships were, therefore, quite new and still identifying strategies for developing STW systems. The class of 1996 seniors who were respondents for the first student survey may have progressed through school “untouched” by STWOA-funded efforts, particularly since most schools have focused early STW implementation on creating new opportunities affecting students in the earlier years of high school and middle school. As suggested by the STWOA, many partnerships and member schools are building on existing practices and programs, which in the past have often operated as distinct programs for small segments of the student population. It is thus unrealistic to expect that our data on the earliest years of STW implementation would indicate either widespread availability of all the key system components or widespread involvement by students in all the activities promoted by the STWOA.

We thus expect that future rounds of evaluation data collection and analysis will show changes from the baseline measures we have taken, although several major challenges could affect the degree of progress. Our baseline measures are far from precise or indisputable gauges of the

implementation of particular STW components or the degree to which they are combined and connected within schools and within students' experiences. Nevertheless, real movement in future years toward greater prevalence, consistency, and connectedness--key features of a STW system--should be evident in these measures. Given the findings of the first surveys and our field observations, we see three conditions that will most likely be major prerequisites for success in achieving a STW system.

### **1. Wider Interest in STW Implementation and Consistency of Practices Is Important**

Both the LPS and our field research make it clear that, within STW partnerships, the levels of interest in and commitment to STW practices are uneven across schools and districts. To a considerable extent, pockets of relative inaction on STW goals reflect the substantial differences (even within partnerships) in student demographics, socioeconomic status, predominant educational and career aspirations, and traditional priorities of the local schools.

Local STW partnerships will not erase these differences, and the STWOA will not appreciably diminish local school autonomy. Local politics can influence the decision of individual school districts, and it is difficult to overcome tradition rooted in the experiences of the families who send their children to local schools and vote in school elections. Districts and individual schools vary in the community resources on which they can draw--such as interested employers, community and civic organizations, and postsecondary educational institutions--resources that sometimes stimulate change in school practices.

Nevertheless, achieving greater consistency of interest and purpose across districts within partnerships will be important to system implementation progress in several ways. First, achieving greater prevalence in STW practices will require greater buy-in from districts or schools that are now skeptical about the merits of STW concepts. Second, broader support for these concepts, particularly

in higher-income suburban districts, could help overcome concerns in other districts about creating a stronger career focus or theme in high school programs. When leaders in affluent school districts espouse the value for college-bound students of gaining greater exposure to careers and using career goals to focus their studies, suspicions in neighboring districts that STW is a form of tracking might abate. Finally, efforts to define and implement career-focused programs of study that respond to high national standards can be accomplished most efficiently if the member districts in partnerships collaborate on developing such programs, instead of working separately.

## **2. Connecting STW Activities Will Require Growing Awareness and Experimentation**

The idea of making a concerted effort to link career development activities, a career focus for students' school programs, and workplace learning is still new to most educators. Although vocational programs have often pursued this ideal, it remains an unfamiliar, sometimes unrecognized, challenge with regard to the general student population. Many schools have implemented career awareness and exposure activities that involve most, if not all, students at some point during their secondary school years. Substantial numbers of schools have experience with career-focused programs of study and work-based learning, although typically in small programs for particular groups of students. Few schools, however, have gone beyond small-scale implementation of these activities to the challenge of connecting them in the experiences of individual students--what we call "multiple-component implementation."

Expanding multiple-component implementation--at the school level and for individual students--will require broadening the appeal of a career-focused program of study. Career-oriented programs have traditionally served primarily vocational students. Many teachers and parents express concern that building a career focus into programs at the secondary level will lower the rigor of the



curriculum or fail to attract the large segment of American students who aspire to attend four year-colleges, particularly the competitive institutions.

This evaluation, however, has already found that, at least in some communities, a wide range of students can find a career focus for high school studies to be valuable. As the student survey shows, some high-achieving students are already making their career goals a focus for their studies and view internships as an activity worth pursuing. Site visit observations found some suburban communities beginning their STW efforts with highly touted success in engaging their most academically talented students in workplace activities related to their career interests. Connected STW programs can appeal to a far more diverse population of students than stereotypes of outmoded vocational programs and the students they served would suggest.

Obstacles clearly remain, however, to creating career-focused programs for a larger segment of the student population. It is easier to make a single STW component more broadly available than it is to expand programs that link multiple components. Increasing scale while preserving quality is a challenge. Some of the connectedness of early STW programs might even be sacrificed as they expand; the logistics of integrating activities for 25 students may be overwhelming when schools try to expand programs to hundreds of students. Some schools see scheduling constraints as a major barrier to such programs, and many are adopting some form of block scheduling in response. Class scheduling was cited as a significant ongoing barrier to STW development by 40 percent of partnership coordinators and something of an obstacle by another 46 percent. The high percentage of partnerships that cite scheduling as a barrier at least suggests that there is widespread awareness of the potential value of making time for more integrated instruction.

Achieving substantial increases in the percentage of students whose school experience somehow integrates developing career interests and workplace learning is likely to require, for some students,

both structured programs and a more customized approach. Schools, working with employers, will probably have to experiment with ways to build on students' interests and out-of-school activities to create projects, research tasks, and community service opportunities that help students refine their interests and develop relevant skills. Not all students will necessarily choose a predefined career major program, but even those who do not can receive help in creating valuable links among school, workplace, and career interests. The first evaluation survey of students suggests, in fact, that some students are already piecing together such experiences.

### **3. Implementation Progress Is Likely to Require Ongoing Resources and State Commitment**

Sustained resources and state commitment are likely to be important ingredients in progress toward higher levels of STW implementation. Evaluation site visits have already suggested that, when resources for partnership activities run out, enthusiasm and capacity for pushing forward with STW plans wane. We have also seen in site visits how important state-level commitments are to shaping and fueling local efforts to fulfill STW implementation goals.

In site interviews and through the LPS, local partnership leaders consistently noted that much of what they hope to accomplish depends on resources at least somewhat beyond those likely to be available in local school budgets or from employers. Functions such as recruiting employers, organizing professional development, developing curricula for new programs, and convening partnership members require staff time and other resources that in many locales cannot be squeezed out of tight school budgets. Expanding STW implementation within local schools--such as increasing the scale of job shadowing or worksite visits--requires staff time to make employer contacts and arrange transportation. Individual teachers have been taking on these tasks themselves for years, and school budgets have been flexible in trying to accommodate these requests, but expanding to involve many teachers and students will be a much larger challenge. In 1996, 53

percent of partnership coordinators ranked lack of staff, time, and funding as the most significant obstacle to STW development, and another 34 percent identified it as a difficulty.

States' roles are likely to be crucial in several ways as federal funding becomes less instrumental in sustaining STW implementation progress. Most obviously, states could provide continuing funding to help local schools and employers work together as partnerships, with some resources to support those functions most efficiently performed together.

States also can take steps to help change local practices in ways consistent with STW concepts. For example, states can promote curriculum changes and enhancements in teacher preparation that could help, in the long term, to overcome obstacles widely noted by partnership coordinators. About 34 percent of partnership coordinators identified, as substantial ongoing problems for STW implementation, resistance among academic teachers to changing instructional methods, and 27 percent cited difficulties revising school curricula to reflect STW objectives. If state education reforms are more closely identified with STW curriculum efforts, then expansion of career development, career majors, and curriculum integration might be more likely to be incorporated into school budgets. State efforts to encourage teacher training institutions to give greater emphasis to career-related issues and integrated instruction could also help. Finally, states can help local partnerships by maintaining their efforts to attract employer support and involvement, working through industry and employer associations at the state level. Field observation suggests that sustaining such a state-level effort can help local employer recruitment efforts.

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**APPENDIX A**

**LOCAL PARTNERSHIP SURVEY COMPLETION RATES**

TABLE A.1

## FALL 1996 LOCAL PARTNERSHIP SURVEY COMPLETION RATES

State Name	Local Partnerships	Number Complete	Percentage Complete
<b>Substate Partnerships in Implementation Grant States</b>			
Alaska	24	24	100
Arizona	12	11	92
Colorado	35	32	91
Florida	28	27	96
Hawaii	25	22	88
Indiana	16	16	100
Iowa	131	130	99
Kentucky	22	21	95
Maine	24	12	50
Maryland	11	10	91
Massachusetts	41	41	100
Michigan	25	22	88
Nebraska	14	14	100
New Hampshire	36	33	92
New Jersey	18	18	100
New York	55	47	85
North Carolina	60	58	97
Ohio	45	33	73
Oklahoma	12	12	100
Oregon	14	14	100
Pennsylvania	53	48	91
Utah	9	9	100
Vermont	14	13	93
Washington	68	61	90
West Virginia	28	28	100
Wisconsin	30	27	90

TABLE A.1 (continued)

State Name	Local Partnerships	Number Complete	Percentage Complete
<b>UROGs and Other Direct Grantees</b>			
Alabama	1	1	100
Arizona	2	1	50
California	11	9	82
Connecticut	1	0	0
Florida	1	1	100
Idaho	1	1	100
Illinois	4	3	75
Kansas	1	1	100
Maryland	1	1	100
Michigan	2	1	50
Minnesota	6	2	33
Missouri	1	1	100
New Mexico	2	1	50
New York	1	1	100
Ohio	1	1	100
Oklahoma	3	2	67
Oregon	1	1	100
Rhode Island	1	1	100
South Carolina	1	1	100
South Dakota	1	1	100
Tennessee	1	1	100
Texas	6	6	100
Utah	1	1	100
Washington	3	3	100
Wisconsin	1	1	100
Wyoming	2	1	50
Puerto Rico	1	1	100
<b>Substate Partnerships Totals</b>	<b>850</b>	<b>783</b>	<b>92</b>
<b>All Direct Grantees</b>	<b>58</b>	<b>45</b>	<b>78</b>
<b>Overall Totals</b>	<b>908</b>	<b>828</b>	<b>91</b>

**APPENDIX B**

**CHARACTERISTICS OF STUDENT SAMPLE**



TABLE B.1  
CHARACTERISTICS OF STUDENT SAMPLE

Groups	Fraction of Sample
Gender	
Male	47.9
Female	52.1
Race/Ethnicity	
African American	12.9
Latino	7.9
White/other	79.2
Welfare Receipt	
Received welfare	4.5
Did not receive welfare	95.5
Disability	
Has disability	10.4
Has no disability	89.2
Parents' Education	
Some postsecondary	73.7
No postsecondary	26.3
Basic College Prep <sup>a</sup>	
Yes	39
No	61
Took Five or More Vocational Classes	
One or less	13.5
Two to four	49.2
Five or more	37.3
Urbanicity	
Urban	29.8
Suburban	51.6
Rural	18.6

162

TABLE B.1 (*continued*)

Groups	Fraction of Sample
Postsecondary Plans	
No plans	12.0
Two-year college	24.3
Four-year college	47.3
Other plans	15.5

SOURCE: Transcripts and survey of 12th graders in the class of 1996, Mathematica Policy Research, Inc.

<sup>a</sup>Basic College Prep is four years of English, two years of a foreign language, and three years of math, science, and social studies.

## **APPENDIX C**

### **STUDENT SUBGROUP PARTICIPATION PROBABILITIES: ESTIMATES FROM MULTIVARIATE MODELS**

This appendix presents estimates of students' probability of participating in each of the STW components based on multivariate models of participation. We employed multivariate logistic models to estimate the probability that a particular student subgroup (for example, girls) participated in a STW component, controlling for that subgroup's other background characteristics and average academic achievement. These probabilities represent the likelihood that a subgroup participates in a STW component, assuming that a subgroup's characteristics are equal to that of the "average" student.<sup>1</sup> Table B.1 includes our probability estimates for each subgroup and each of three STW components: comprehensive career development, workplace activities linked to school, and career majors. These three components are defined based on students' responses to several questions in the student survey (see Table IV.1). The rest of this appendix briefly outlines the data, methodology, and main findings from the multivariate models.

The explanatory variables in the models describe students' demographic characteristics, academic achievement levels, school, and urbanicity. The demographic characteristics include six variables drawn from the student survey: gender, race/ethnicity, family welfare receipt, disability, and parents' educational attainment. The academic achievement variables include students' class rank and attendance in 9th grade, cumulative high school class rank and attendance through the end of 12th grade, plans for postsecondary education and training for the fall after graduation, and whether or not students completed the "New Basics" College Prep curriculum during high school (four years of English, two years of a foreign language, and three years of math, science, and social studies). Except for students' postsecondary plans (a question on the student survey), all the other academic

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<sup>1</sup>When we control for students' characteristics, we are imposing the condition that the subgroup contain the "average" mix of students with respect to every background variable except the one that defines the subgroup. For example, in estimating female and male students' relative probability of participation, we impose the condition that both groups contain the same mix of high and low achievers, disabled and nondisabled students, African Americans, Latinos, whites, and so forth.

achievement variables were derived from students' transcripts. We also constructed two school-level explanatory variables using data from the National Center for Education Statistics: the urbanicity of the school (that is, whether or not the school is in an urban, suburban, or rural district) and the fraction of the school's students who were eligible for the free lunch program.

To estimate the probabilities of participation, we used three types of models, each of which included different explanatory variables. Most of the estimates reported in Table C.1 are based on a "predictive model" in which the explanatory variables are student characteristics that are fixed or unlikely to be affected by students' participation in STW activities. This model assesses the power of each explanatory variable in predicting whether or not a student participates in a particular STW component. The explanatory variables in this model included all the student demographic characteristics, an indicator of the school students attended, as well as students' ninth-grade class rank and attendance.<sup>2</sup> (Since most students' participated in STW activities after ninth grade, it is unlikely that these activities appreciably affected their ninth grade academic performance.)<sup>3</sup>

The probability estimates for the other academic achievement variables--the College Prep indicator, 12th-grade cumulative class rank and attendance, and students' postsecondary plans--were derived using a series of models, each of which had a similar specification. Each model included as explanatory variables one of these academic achievement variables, all the student demographic variables, and the indicators of which school the student attended.

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<sup>2</sup>The models predicting students' probability of participating in "all three" components included indicators of students' state of residence rather than their schools. This substitution was necessary because the activity predicted by these models was such a rare event. Since many schools had no students who participated in all three components, the model would not converge if we included all the school-specific indicators.

<sup>3</sup>An exception is some of the career development activities, some of which involved ninth graders. However, most of the activities involving ninth graders--such as career interest inventories--were quite brief and hence were unlikely to have an appreciable affect on students' ninth-grade academic performance.

TABLE C.1

ESTIMATED PROBABILITY OF PARTICIPATING IN STW COMPONENTS  
RESULTS FROM MULTIVARIATE MODELS

Group	Probability of Participation			
	Comprehensive Career Development	Positions Linked to School	Career Majors	All Three Components
All Students				
Gender				
Male	61.6	13.5**	11.0	2.3
Female	64.8	18.6**	12.3	2.0
Race/Ethnicity				
African American	68.3	19.9	14.6	4.6
Latino	68.4	13.2	19.8	2.0
White/other	61.9	15.8	10.6	1.8
Family Welfare Received				
Yes	67.2	16.5	23.6**	3.5
No	63.1	16.1	11.2**	2.1
Disability				
Has disability	62.5	21.5	10.9	2.4
Has no disability	63.3	16.1	11.8	2.1
Parents' Education				
Some postsecondary	63.5	15.4	12.1	2.0
No postsecondary	62.6	18.3	10.7	2.4
Ninth-Grade Class Rank				
Top quartile	64.8	16.5	14.9*	2.5
Middle quartile	61.0	15.9	10.1*	2.0
Bottom quartile	64.8	15.9	10.1*	2.0
Cumulative High School Class Rank				
Top quartile	62.2	16.6	11.6	2.0
Middle quartile	64.2	15.6	12.5	2.6
Bottom quartile	63.7	16.2	9.8	1.2
Ninth-Grade Attendance				
Top quartile	64.1	16.0	12.8*	2.3*
Middle quartile	62.9	16.7	11.4*	2.6*
Bottom quartile	58.7	15.8	7.2*	0.8*

TABLE C.1 (continued)

Group	Probability of Participation			
	Comprehensive Career Development	Positions Linked to School	Career Majors	All Three Components
Cumulative High School Attendance				
Top quartile	65.3*	15.6	14.2**	2.6**
Middle quartile	61.1*	17.8	10.3**	2.6**
Bottom quartile	58.4*	14.7	7.0**	0.2**
Basic College Prep <sup>a</sup>				
Yes	62.4	13.7	12.1	1.5
No	63.7	17.3	11.6	2.5
Took Five or More Vocational Classes				
One or less	55.6*	10.4**	12.5	0.7**
Two to four	64.2*	12.5**	11.1	2.2**
Five or more	69.6*	28.9**	11.9	4.8**
Urbanicity				
Urban	56.3*	19.1	9.7**	2.4
Suburban	65.0*	14.1	10.6**	1.1
Rural	69.5*	16.7	18.9**	3.9
Income of School's Student Body				
Top quartile	57.8*	14.5	12.6	1.0
Middle quartile	63.6*	16.8	12.0	2.8
Bottom quartile	69.1*	16.5	10.2	2.4
Postsecondary Plans				
Four-year college	63.8**	14.3*	14.5*	1.7
Two-year college	64.1**	20.5*	10.0*	3.0
Program lasting less than two years	68.2**	18.7*	11.4*	2.8
No plans	55.7**	12.1*	7.2*	1.2

SOURCE: Transcripts and survey of 12th graders in the class of 1996, Mathematica Policy Research, Inc.

<sup>a</sup>Basic College Prep is four years of English, two years of a foreign language, and three years of math, science, and social studies.

\*There are significant differences among the groups' participation rates at the .05 level, two-tailed test.

\*\*There are significant differences among the groups' participation rates at the .01 level, two-tailed test.

Finally, the estimates for the two school-level variables--schools' urbanicity and the fraction of schools' student bodies that were eligible for free lunch--are based on a third model. This model included both of these school-level variables, all the student demographic variables, and the ninth-grade class rank and attendance variables. It was necessary to exclude the school-specific indicators from this third model, because they are perfectly collinear with the urbanicity indicators.

For each explanatory variable, we report whether there was a statistically significant difference in the probability of participation among the subgroups defined by that variable. For example, we note whether there is a significant difference in the probabilities of participation of male and female students, holding constant their other characteristics. To perform the tests of statistical significance, we made a simplifying assumption about the design effect associated with our clustered sample design. The design effect is equal to the ratio of the actual variance of the parameters given our clustered sample design to the variance that would have existed if we had a simple random sample of the same size. For computational reasons, we assumed that the design effect on each marginal probability was comparable to the design effect on the corresponding coefficient in the multivariate model. This assumption is likely to be reasonably accurate, since the variance of the estimated coefficients is usually close to that of the marginal probabilities.

While the multivariate model is conceptually different from the simple (bivariate) subgroup participation rates discussed in Chapter IV, the multivariate and bivariate results are actually quite similar (see Tables B.1, IV.3, and IV.6 and Figure IV.3). With a few exceptions, the subgroup differences that are statistically significant based on the bivariate comparisons are also significant based on the multivariate model: including the differences in participation probabilities of subgroups defined by students' gender, family welfare receipt, urbanicity, 9th-grade class rank, cumulative 12th-grade attendance, and number of vocational courses completed. A few of the subgroup



differences that were not statistically significant based on the bivariate comparisons were significant based on the multivariate models. In particular, the multivariate results indicate that rural students were more likely to participate in career development activities, students with poor ninth-grade attendance were less likely to have career majors, and students with no postsecondary educational plans were less likely to participate in career majors and career development activities. Finally, while the simple bivariate results indicated that students at the top of their 12th-grade class were significantly more likely to participate in career majors, the multivariate model did not generate the same result.



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